

# REVISION OF AUSTRALIAN GEOMETRIDAE (LEPIDOPTERA).

CONTAINING A REVISION OF THE ARCHAIC TYPES OF THE FAMILY, WITH  
NOTES AND DESCRIPTIONS OF NEW SPECIES.

By GILBERT M. GOLDFINCH.

(Plates xiv-xvi and four Text-figures.)

[Read 25th September, 1929.]

For some time I have had in my collection a number of species of the archaic types of this family, which I was unable satisfactorily to identify, but recently, through the kindness of other Lepidopterists and some of the Museums in Australia, I have had in my charge for examination almost the whole of the species hitherto recorded from Australia.

I have therefore ventured to prepare the present paper, which is intended to be a revision of the Australian species which fall under Groups 1 and 2 in Mr. L. B. Prout's Monograph of the family (Genera Insectorum, fasc. 129, 1912). This attempt will, I hope, help to unravel some of the difficulties which have confronted Australian Lepidopterists working in the group.

In those cases in which I have ventured to differ from Dr. A. J. Turner and Mr. Prout, I must ask indulgence, for I have been fortunate in having available for study long series of some species which perhaps were not accessible to those workers.

In the generic descriptions I have adopted the notation used by Dr. R. J. Tillyard in his "Insects of Australia and New Zealand".

My thanks are specially due to the following: The Director of the South Australian Museum for the opportunity afforded me to examine the Lower and Lucas types contained in the Museum collection; Dr. A. J. Turner for the loan of specimens and for many valuable suggestions; Mr. George Lyell for the loan of types and other specimens; Mr. W. B. Barnard for the opportunity to examine the valuable specimens collected by him at Cape York and Toowoomba, and for the gift of many specimens; Dr. G. A. Waterhouse for the gift of many specimens; the Director of the Australian Museum and the New South Wales Government Entomologist for their ready permission to consult their libraries.

## Key to Genera.

1. Vein  $R_2$  arising separately from cell ..... 2  
Vein  $R_2$  not arising separately from cell ..... 5
2. Thorax and abdomen not crested ..... *Protophyta*  
Thorax crested and abdomen often so ..... 3
3. Thorax with small posterior crest, ♂ antennae simple ..... *Rhuma*  
Thorax strongly crested, ♂ antennae bipectinated ..... 4
4. Rs and  $M_1$  of hindwings not stalked, thoracic crest exaggerated, posterior tibiae without terminal process ..... *Heliomystis*  
Rs and  $M_1$  of hindwings usually stalked, thoracic crest moderate, posterior tibiae of ♂ with stout terminal process ..... *Sterictopsis*

5. Posterior tibiae with terminal spurs only\* ..... *Crypsiphona*  
 Posterior tibiae with median and terminal spurs\* ..... 6
6. Antennae in ♂ not bipectinate ..... 7  
 Antennae in ♂ bipectinate ..... 8
7. ♂ antennae simple (minutely ciliated) ..... *Epipristis*  
 ♂ antennae dentate with tufts of short cilia ..... *Aeolochroma*
8. Hindwing with projecting teeth on veins  $M_2$ - $Cu_{1a}$ - $Cu_{1b}$  and 2A ..... 9  
 Hindwing without projecting teeth on veins  $M_3$ - $Cu_{1a}$ - $Cu_{1b}$  and 2A ..... 10
9. Head with hood of scales projecting above face, antennal pectinations in ♂ long  
 ..... *Cyneoterpna*  
 Head without hood of scales above face, antennal pectinations in ♂ very short  
 ..... *Paraterpna*
10. Hindwings and sometimes base of forewings with tufts of scales ..... *Pingasa*  
 Fore and hind wings without tufts of scales ..... 11
11. Robust build with broad and spreading tegulae ..... *Hypobapta*  
 Slender build with tegulae normal ..... 12
12. Hindwings with  $Sc + R_1$  closely approximated to cell to well beyond middle .....  
 ..... *Oenochlora*  
 Hindwings with  $Sc + R_1$  diverging from cell before middle ..... 13
13. Hindwings with  $R_s$  and  $M_1$  stalked ..... *Austroterpna*  
 Hindwings with  $R_s$  and  $M_1$  separate ..... *Terpna*  
 \* Except *Hypobapta eugramma* in which the median spurs are absent.

## 1. Genus PROTOPHYTA.

Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 648; Prout, *Gen. Insectorum*, fasc. 129, 1912, 22.

Face smooth. Tongue well developed. Palpi moderate, obliquely ascending, second joint rough-haired above and beneath, terminal joint moderate. Antennae in ♂ bipectinate, apices simple, in ♀ minutely ciliated. Thorax not crested, densely hairy beneath. Abdomen not crested. Posterior tibiae not dilated, all spurs present. Hindwings without costal expansion at base, frenulum and retinaculum in ♂ well developed, in ♀ frenulum represented by a tuft of hairs. Forewings with termen crenulate;  $R_1$  from cell approximated to or anastomosing with  $Sc$  at a point,  $R_2$  from cell approximated to or anastomosing with stalk of  $R_3$ - $R_4$  beyond  $R_5$ ,  $R_{3-4}$  and  $R_5$  stalked from before apex of cell;  $M_1$  separate, from apex;  $M_2$  and  $M_3$  separate;  $M_2$  remote from  $M_1$  but above middle of discocellulars,  $Cu_{1a}$  separate. Discocellulars curved inwards.

Hindwings with termen dentate;  $Sc + R_1$  closely approximated to cell to well beyond middle,  $R_s$  and  $M_1$  separate,  $M_2$  remote from  $M_1$ ,  $M_3$  and  $Cu_{1a}$  separate, discocellulars curved inwards.

Type, *P. castanea* Lower.

## 1. PROTOPHYTA CASTANEA. Pl. xiv, figs. 7, 8, 9, 10.

*Pseudoterpna castanea*, Lower, PROC. LINN. SOC. N.S.W., 23, 1898, 45.—  
*Protophyta castanea*, Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 648; Prout, *Gen. Insectorum*, fasc. 129, 1912, 22.

N.S. Wales: Port Macquarie (April), Toronto (April), Liverpool (January), Mittagong (February).

## 2. Genus HELIOMYSTIS.

Meyrick, PROC. LINN. SOC. N.S.W., (2) 2, 1888, 900; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 647; Prout, *Gen. Insectorum*, fasc. 129, 1912, 22.

Face shortly hairy. Tongue well developed. Palpi moderate, porrect, basal and second joints densely hairy beneath, second joint hairy on upper surface,

terminal joint moderate. Antennae in ♂ pectinated nearly to apex. Thorax with a dense and spreading posterior crest; beneath densely hairy. Abdomen with strong median dorsal crests. Posterior tibiae dilated in ♂, with all spurs present (no posterior process present), an internal groove and tuft. Hindwings without basal costal expansion; frenulum and retinaculum in ♂ strong. Forewings:  $R_1$  from cell anastomosing with Sc;  $R_2$  separate from cell;  $R_{3-4}$  and  $R_5$  stalked from apex of cell,  $M_1$  connate;  $M_3$  and  $Cu_{1a}$  separate. Hindwings: Sc +  $R_1$  closely approximated to cell to beyond middle, Rs and  $M_1$  separate,  $M_2$  remote from  $M_1$ ,  $M_3$  and  $Cu_{1a}$  separate; discocellulars angled on  $M_2$ , dorsal strongly angled towards base beneath  $M_2$ , then rather strongly oblique.

Type, *H. electrica* Meyrick.

### 2. HELIOMYSTIS ELECTRICA. Pl. xiv, fig. 11.

Meyrick, PROC. LINN. SOC. N.S.W., (2) 2, 1888, 900; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 648; Prout, *Gen. Insectorum*, fasc. 129, 1912, 23.

Q'land: National Park (low level); N. S. Wales: Wentworth Falls (May), Mittagong (November), Jervis Bay, Kosciusko (5,000 feet, January); Victoria: Gisborne (December); Tasmania: St. Marys.

### 3. Genus RHUMA.

Walker, *List Lep. Ins. Brit. Museum*, 21, 1860, 483; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 646; Prout, *Gen. Insectorum*, fasc. 129, 1912, 23.

Face smooth. Tongue well developed. Palpi moderate, porrect or obliquely ascending; basal joint with long spreading hairs; second joint smooth; terminal joint short in both sexes. Antennae in ♂ slightly serrate, ciliated; in ♀ simple. Thorax with a small posterior crest; beneath densely hairy. Abdomen with strong median dorsal crests. Posterior tibiae with all spurs present; in ♂ strongly dilated, with internal groove and tuft, middle spurs long, terminal spurs abbreviated, a short stout terminal process. Hindwings without basal costal expansion; frenulum and retinaculum in ♂ well developed; frenulum in ♀ represented by a tuft of long hairs. Forewings:  $R_1$  and  $R_2$  arising separately from cell and free,  $R_{3-5}$  stalked,  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  separate. Hindwings: Sc +  $R_1$  closely approximated to cell to well beyond middle, Rs and  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  widely separate; discocellulars not angled, moderately oblique, dorsal curved.

Type, *R. subaurata* Walker.

### 3. RHUMA SUBAURATA.

Walker, *List. Lep. Ins. Brit. Mus.*, 21, 1860, 484; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 647; Prout, *Gen. Insect.*, fasc. 129, 1912, 23.

Q'land: Yeppoon (Oct., Turner), Brisbane (Nov. and March, Illidge); N. S. Wales: Taree (Parkes).

### 4. Genus STERICTOPSIS.

Warren, *Novit. Zool.*, 5, 1898, 257; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 645; Prout, *Gen. Insectorum*, fasc. 129, 1912, 23; Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 282.

Face smooth or moderately so. Palpi moderate, second joint rather long haired beneath, rough-haired above, third joint short in both sexes. Antennae in ♂ bipectinated, apices simple, in ♀ simple, minutely ciliated. Thorax with short

but dense posterior crest, beneath densely hairy, abdomen with 3 or 4 large dense median dorsal crests. Posterior tibiae with all spurs present, in ♂ dilated, with internal groove and tuft, and long posterior process. Hindwing without basal costal expansion, frenulum and retinaculum in ♂ well developed. Forewings: Termen rather straight;  $R_1$  from cell and free (rarely anastomosing at a point with Sc),  $R_2$  from cell and free,  $R_{3-4-5}$  stalked from apex of cell,  $M_1$  connate,  $M_2$  remote,  $M_3$  and  $Cu_{1a}$  separate. Hindwings: Sc +  $R_1$  closely approximated to cell to about middle, Rs and  $M_1$  short stalked or connate,  $M_2$  from near angle of cell,  $M_3$  and  $Cu_{1a}$  well separated at base. Discocellulars moderately bent inwards.

Type, *Sterictopsis argyraspis* Lower (*inconsequens* Warren is a synonym).

Hitherto the principal distinction between *Heliomystis* and *Sterictopsis* was based on the separation of Rs and  $M_1$  of the hindwings in the former, and their being stalked in the latter. In a species described below, this point proves unreliable, but I believe the two genera may well be separated by the great difference in the character of the thoracic crest, and the complete absence in *Heliomystis* of the terminal processes on the posterior tibiae.

#### 4. STERICTOPSIS ARGYRASPIIS. Pl. xv, fig. 5, 6.

*Pseudoterpna argyraspis*, Lower, *Trans. Roy. Soc. S. Aust.*, 17, 1893, 157.—*Sterictopsis inconsequens*, Warren, *Nov. Zool.*, 5, 1898, 257.—*S. paratorna*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 645.

Considerable confusion has existed in connection with this species, and Dr. Turner's remarks on *paratorna* in the above paper must be considered as referring to *argyraspis* Low. and not to the true *paratorna* Meyrick, which species was not known to him at that time.

Q'land: Duaringa (Oct.), Toowoomba (Sept. and Oct., Barnard), Brisbane; N. S. Wales: Sydney (Sept.), Blue Mts. (Jan., Waterhouse), Jervis Bay (Moss Robinson); Victoria: Gisborne (Nov. and Dec., Lyell); S. Aust.

I have examined the type of *argyraspis* Lower. It is, with little doubt, the same species as *inconsequens* Warren, and the name must therefore take precedence. The species is variable, and subject to considerable melanism as pointed out by Dr. Turner.

#### 5. STERICTOPSIS DIVERGENS, n. sp. Pl. xv, fig. 4.

♂. 44 mm. Head snow white, with a few fuscous scales at vertex, lower portion of face and a line between antennae fuscous. Palpi fuscous, towards base white beneath, apex of second joint white ringed, apex of terminal joint white. Thorax with a short posterior crest, white, with three obscure fuscous bifurcate marks. Abdomen white, irrorated with fuscous scales, with three fuscous, white-tipped crests. Anal tuft grey. Legs black, ringed with white, except tibiae of posterior pair which are white. Forewings triangular, costa almost straight, apex rounded, termen moderately bowed, white, irrorated with black scales, yellowish suffusions, markings black. A longitudinal short black mark at base of costa, a series of black marks along costa, first small, before one-fourth, second larger at one-fourth, third at one-half, fourth at three-fourths, and fifth double before apex. First line arising from second costal spot, sharply angulated outwards in disc and again more deeply below cubitus, to dorsum at one-third. Second line from fourth costal spot, obliquely outwards to a point, thence downwards three times angled, thence four times angled to dorsum at two-thirds; an obscure subterminal wavy whitish line from below apex to before tornus interrupted in middle by a

yellowish bar proceeding from a yellowish suffusion in discal area reaching the termen; an obscure waved fuscous terminal line. The area between first and second lines more or less suffused with yellowish. An obscure greyish oval discal spot ringed with fuscous, cilia fuscous, indistinctly barred with whitish. Hindwings evenly rounded, greyish-white, the terminal area broadly suffused with fuscous. An obscure grey blotch at end of cell. A waved black line from costa before apex not reaching the dorsum, acutely angled on  $M_3$ ; an obscure greyish-white, waved subterminal line. Cilia fuscous, indistinctly barred with whitish. Underside yellowish-white. Discal spots large, black; large black subterminal blotches more or less obscure towards the margins.

Mittagong, N.S.W., 4 ♂ in November. Taken at light in Eucalyptus forest. Type in collection Goldfinch.

Of the four specimens known, two have veins  $R_s$  and  $M_1$  of the hindwings short stalked, whilst the other two specimens have these veins connate. In no specimen are these veins actually separate as in *Heliomystis*, but the distinction between veins which are connate, and those which are separate though closely approximated, is slender, and would, in the case of *Sterictopsis divergens*, almost certainly be found to break down.

5. Genus HYPOBAPTA.

Prout, *Gen. Insectorum*, fasc. 129, 1912, 41.

Face and vertex rough scaled, palpi rather short, second joint densely rough scaled, terminal joint short. Tongue present. Antennae two-thirds as long as costa, pectinated, towards apex simple, in ♀ serrate. Posterior tibiae not dilated, median spurs very short, or absent (*eugramma*). Thorax very robust, with or without slight posterior crest, tegulae very broad and extending almost to posterior edge of thorax, densely hairy beneath. Abdomen sometimes slightly crested. Hindwings without costal expansion at base, frenulum and retinaculum in ♂ well developed, in ♀ represented by a tuft of long hairs. Forewings:  $R_1$  from cell from well before angle,  $R_2$  from the common stalk of  $R_{3-4-5}$  from before  $R_5$ ,  $M_1$  approximated, connate or stalked,  $M_2$  remote from  $M_1$ ,  $M_3$  and  $Cu_{1a}$  separate, discocellulars curved inwards below middle. Hindwings:  $Sc + R_1$  approximated to cell to about middle, then diverging rather rapidly,  $R_s$  and  $M_1$  separate, or connate (*eugramma*),  $M_2$  remote,  $M_3$  and  $Cu_{1a}$  separate, discocellulars curved inwards below middle.

Type, *H. percomptaria* Guenée.

The species here included differ in the presence or absence of median spurs in the hind tibiae, but, apart from this character, they exhibit real relationship and until the early stages are known it would appear more convenient to include *eugramma* with *percomptaria* and *barnardi*.

Key to Species.

- 1. Median spurs of posterior tibiae absent ..... *eugramma*  
 Median spurs of posterior tibiae present ..... 2
- 2. Postmedian line twice angled ..... *barnardi*  
 Postmedian line almost straight ..... *percomptaria*

6. HYPOBAPTA PERCOMPTARIA.

*Hypochroma percomptaria*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 280, Pl. 6, fig. 4.—*Terpna percomptaria*, Herr.-Schaff., *Samml. Aussereur. Schmettl.*, i, 1858, 62 and 84, t. 95, fig. 544, 545.—*Pseudoterpna percomptaria*, Swinhoe, *Lep. Het. Oxf. Mus.*, 2,

1900, 385.—*T. percomptaria*, Turner, Proc. LINN. Soc. N.S.W., 35, 1910, 638.—*Terpna* (*Hypobapta*) *percomptaria*, Prout, Gen. Insect., fasc. 129, 1912, 41.—*Terpna percomptaria*, Turner, Trans. Roy. Soc. S. Aust., 46, 1922, 281.

N. Q'land: Mt. Molloy (Dec.); Q'land: Clermont, Toowoomba, Brisbane; N. S. Wales: Newcastle, Sydney (June, Sept., Oct.), Blue Mts. (Dec., March), Mittagong (Nov., Jan.), Jervis Bay; Victoria: Melbourne, Gisborne (Jan., Feb., Mar., Apl., Dec.).

There is a ♂ specimen in the Australian Museum collection from Western Australia labelled as being this species. It is really *H. eugramma* Lower which closely resembles the present species. If this is the specimen referred to by Meyrick from Albany, the record under *percomptaria* may be disregarded.

#### 7. HYPOBAPTA EUGRAMMA. Pl. xv, fig. 16.

*Hypochroma eugramma*, Lower, Trans. Roy. Soc. S. Aust., 15, 1892, 14; Prout, Gen. Insect., fasc. 129, 1912, 248.

I have examined the type, together with a second specimen in the Lower collection, and a ♂ forwarded by Mr. Barnard from Toowoomba. Mr. Barnard's specimen is in excellent condition, and agrees well with Lower's description, excepting that the subterminal area is greyish fuscous, with only a small brownish area above the tornus. Lower did not perceive the absence of the median spurs in the posterior tibiae, but, apart from this, his description is accurate. The thorax and abdomen are not crested, and the face is slightly less rounded than *percomptaria*. There is a damaged ♀ in the South Australian Museum collection (46 mm.) from Castlemaine, Victoria. The ♂ in the Australian Museum from Western Australia, has the subterminal areas brownish, as described by Lower.

Q'land: Toowoomba (Sept., Barnard); Victoria: Castlemaine; South Aust.: (Parkside), Adelaide (Feb., Lower); W. Aust.

#### 8. HYPOBAPTA BARNARDI, n. sp. Pl. xv, fig. 15.

♂, ♀. 32 mm. Face whitish-grey, with a fuscous narrow transverse bar above middle, lower edge blackish. Palpi whitish, irrorated with black scales; terminal joint black. Thorax rather dark grey, tegulae with a broad black transverse posterior bar. Abdomen whitish, irrorated with brownish fuscous scales, forming transverse marks on the segments, tuft greyish-white. Legs: anterior and median pairs grey, tibiae fuscous, ringed with whitish; posterior pair whitish, irrorated with fuscous scales, the median spurs extremely small. Forewings triangular, costa almost straight, termen bowed; whitish-grey irrorated with fuscous scales, lines black; a transverse black mark from costa not reaching dorsum, closely followed by a similar mark almost reaching dorsum; first line outwards curved from costa at about one-fourth, to dorsum at middle; second line from costa at about two-thirds to dorsum at three-fourths, three times inwards curved, forming posteriorly projecting teeth, the first between veins  $M_2$  and  $M_3$ , the second on vein  $Cu_{1b}$ , a linear black transverse discal mark, a dentate obscure whitish subterminal line from costa before apex to tornus, the subapical dentations bordered posteriorly by fuscous, and connected by fuscous bars with the terminal line which is slender and black. The first line is followed by a brownish fuscous narrow shade below the cell; cilia greyish-white, indistinctly barred with fuscous at the vein endings. Hindwings: Basal marks and first line absent, second line from costa before apex, to dorsum at about three-fourths, followed by a broad fuscous suffusion, paler towards the termen, enclosing an obscure whitish sub-

terminal line not reaching the costa. Discal mark, terminal line and cilia as in forewings. Beneath white, irrorated sparsely with fuscous scales, first line absent, discal marks and second lines as in forewings, followed in both wings by a fuscous suffusion not reaching the termen or tornus. Subterminal line indicated below the costa by three white dentations.

Q'land: Toowoomba (Oct., Barnard)—Holotype ♂ in collection Barnard; N. S. Wales: Hornsby (Tillyard); South Aust.: Murray Bridge.

#### 9. HYPOBAPTA XENOMORPHA.

*Pseudoterpna xenomorpha*, Lower, PROC. LINN. SOC. N.S.W., 40, 1915, 474.

I have examined the type, but in its present condition (almost descaled) it is difficult to form a sound opinion. It certainly belongs to this genus, and Lower's description appears to be accurate. The species closely resembles *H. eugramma* Lower, of which it might be considered the ♀, excepting for the presence of median spurs on the posterior tibiae and the different form of the first line which arises on the costa at one-fourth, thence straight to dorsum at one-half. There is also no transverse black bar on the tegulae as in *eugramma*. The specimen has been attacked by *Anthrenum*.

Fresh material will be necessary to decide the validity of this species.

#### 10. ? HYPOBAPTA DIFFUNDENS.

*Hypochroma diffundens*, Lucas, PROC. LINN. SOC. N.S.W., 6, 1891, 298.

The type is not in the Lucas Collection in the South Australian Museum, but from the description it seems likely that the species is close to *H. barnardi* described in this paper. The first line appears to be differently formed, as is also the second line, whilst in the hindwing the basal streak and first line are entirely absent in *H. barnardi*.

Dawson River (1 ♂, Barnard).

This species must also await the capture of fresh material to ascertain its correct position.

#### 6. Genus AUSTROTERPNA, n. g.

Face smooth, tongue well developed. Palpi rather long, porrected, clothed with long hairs above and beneath, terminal joint short, hairy. Antennae in ♂ bipectinated, towards apex simple. Thorax with a broad though rather short posterior crest, beneath densely hairy. Abdomen smooth, terminal segments with slight lateral tufts. Posterior tibiae with all spurs present. Hindwings without basal costal expansion, frenulum and retinaculum in ♂ well developed. Forewings with  $R_1$  from cell anastomosing with Sc and  $R_2$ ,  $R_{2-3-4-5}$  stalked from apex of cell,  $M_1$  short stalked with their common stalk,  $M_2$  remote,  $M_3$  and  $Cu_{1a}$  separate. Hindwing, Sc +  $R_1$  approximated to cell to about one-third, thence rather rapidly diverging, Rs and  $M_1$  stalked from angle,  $M_2$  remote,  $M_3$  and  $Cu_{1a}$  separate.

Type *A. idiographa*, n. sp.

Allied to *Terpna*, but distinguished by the anastomosis of vein  $R_1$  with Sc and  $R_2$ , the staking of veins Rs and  $M_1$  of the hindwing, and by the absence of abdominal crests.

*A. paratorna* Meyrick has hitherto been confused with species of the genus *Sterictopsis*, but I doubt if they are really even closely related.

## 11. AUSTROTERPNA IDIOGRAPHA, n. sp. Pl. xvi, fig. 19.

♂. 32 mm. Head brown irrorated with grey scales. Palpi  $2\frac{1}{2}$ , reddish-brown, towards base pinkish. Antennae brown, bipectinate, pectinations  $1\frac{1}{2}$ . Legs: anterior and median pairs reddish-brown, irrorated with black, tarsi black, ringed at joints with paler, posterior pair pale reddish, irrorated with black. Thorax brownish grey, beneath clothed with long white hairs, pinkish tipped anteriorly. Abdomen brownish. Forewings triangular, costa evenly bowed, termen slightly waved, brown, densely strigulated with fuscous, towards the termen irrorated with white scales. Markings black, well defined. A small black spot at base enclosing a few red scales. First line from costa at one-fifth to dorsum at one-third, almost straight, edged on both sides with red scales. A slender linear transverse discal spot, followed by a whitish suffusion not reaching the costa, and bounded posteriorly by the second line. Second line from costa at beyond three-fourths, to dorsum at two-thirds, sinuate to a point on vein  $Cu_{1b}$ , which it follows to a point below middle of cell, thence sinuate to dorsum at two-thirds. A series of black triangular dashes from costa before apex to second line above middle, those near costa confluent. A dentate whitish subterminal line from apex to tornus. A fine black terminal line from apex to tornus. Cilia pinkish-brown, obscurely barred with fuscous. Hindwings whitish fuscous. An obscure transverse discal fuscous spot, first line absent, second line indicated on dorsum, a broad fuscous subterminal suffusion fading to pinkish-brown along termen. Terminal line and cilia as in forewings. Beneath whitish, irrorated with fuscous, and slightly pinkish tinged beneath costa in both wings, discal spots, second lines, and subterminal blotches as above, but less well defined.

N. S. Wales: (Narara) Gosford (April, Moss Robinson), 1 ♂.

Type in collection Goldfinch.

## 12. AUSTROTERPNA PARATORNA.

*Hypochroma paratorna*, Meyrick, Proc. LINN. Soc. N.S.W., (2) 2, 1888, 906.

1 ♂, Parachilna, Flinders Range, South Australia (Hale), in the South Australian Museum.

The specimen is in rather poor condition, but agrees structurally with Meyrick's species, and the markings appear to be the same. The wings are narrower and more elongate than in *A. idiographa*.

## 7. Genus PINGASA.

Moore, *Lep. Ceylon*, 3, 1887, 419.—*Pingasa*, Moore, *Lep. Atkinson Coll.*, 1888, 247.—*Skorpisthes*, Lucas, *Proc. Roy. Soc. Q'land*, 15, 1900, 143.—*Terpna* (part), Turner, Proc. LINN. Soc. N.S.W., 35, 1910, 634.—*Pingasa*, Prout, *Gen. Insect.*, fasc. 129, 1912, 30; Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 280.

Face smooth (except in *paroptila*, which has dense projecting hairs). Palpi in ♂ moderate, in ♀ rather long, second joint densely rough-scaled, terminal joint in ♂ moderate, in ♀ rather long. Tongue well developed. Antennae rather long, in ♂ bipectinate to about two-thirds, in ♀ simple. Thorax not crested, beneath densely hairy. Abdomen with rather short dorsal crests, single or double, in ♂ often with lateral tufts on terminal segments. Posterior tibiae with all spurs present, in ♂ sometimes dilated, with a groove and pencil of hairs on inner side. Hindwing without rounded basal costal expansion, frenulum and retinaculum in ♂ well developed, in ♀, frenulum represented by a tuft of long hairs. Forewing:



$R_1$  from cell, free, or anastomosing with Sc, or with Sc and  $R_2$ ;  $R_{2-3-4-5}$  stalked,  $M_1$  separate or connate,  $M_2$  remote from  $M_1$ ,  $M_3$  and  $Cu_{1a}$  separate. Hindwing: Sc +  $R_1$  approximated to cell near base, then rather rapidly diverging, Rs and  $M_1$  separate,  $M_2$  remote from  $M_1$ ,  $M_3$  and  $Cu_{1a}$  separate. Hindwings with tufts of raised scales on upper surface, in some species near base only, in others in terminal area also. The latter group usually with tufts of raised scales near the base of forewings.

Type, *Pingasa ruginaria* Guenée.

I agree with Turner that it is not necessary to divide this genus, although there are clearly two tribes, one in which the scale tufts are confined to the basal area of the hindwings, apparently of Asiatic origin, and the other with scale tufts near the base of the forewings, and extending into the sub-terminal area of the hindwings, largely developed in the Austro-Papuan region. Of the first group, one species only is as yet unknown beyond Australia.

*Group 1. Hindwings in ♂ rather long and narrow, tornus somewhat produced, dorsum long. Scale tufts near base of hindwings only.*

The species contained in this group and occurring in Australia, are clear white beneath, with more or less broad black areas along the termen in both wings. In one species there is a yellowish suffusion towards the base and along the costa.

*Key to Species.*

- |   |                    |
|---|--------------------|
| 1. Ground colour of wings grey above .....  | 2                  |
| Ground colour of wings green above .....  | <i>atriscripta</i> |
| 2. Antemedian line of forewings forming two strongly rounded projections ....                                       | <i>cinerea</i>     |
| Antemedian line of forewings not so .....   | 3                  |
| 3. Antemedian line of forewings with subcostal dentation connecting with discal spot .....                          | <i>blanda</i>      |
| Antemedian line of forewings not so .....   | 4                  |
| 4. Subterminal areas above strongly suffused with reddish-brown or fuscous; posterior tibiae strongly dilated ..... | <i>ruginaria</i>   |
| Subterminal areas irrorated only, with reddish-brown, posterior tibiae slightly dilated .....                       | <i>chlora</i>      |

13. PINGASA RUGINARIA. Pl. xv, fig. 8.

*Hypochroma ruginaria*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 278.—*H. commutata*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 429.—*H. communicans*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 430.—*H. perfectaria*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 434.—*H. nyctemerata*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 444.—*H. grandidieri*, Butler, *Cist. Ent.*, 2, 1879, 394. Var.—*H. ruginaria*, Moore, *Lep. Ceylon*, 3, 1887, 419.—*Pingasa decristata*, Warren, *Nov. Zool.*, 9, 1902, 492.—*P. ruginaria*, Prout, *Gen. Insect.*, fasc. 129, 1912, 31.

This species has not hitherto been recorded from Australia. It appears to have less yellow towards the base beneath than more Western examples, but I can find no reason for separation. It bears a considerable resemblance to *P. chlora*, of which it might at first sight be taken for a variety, but the form of the second line is different, and the posterior tibiae are strongly dilated.

Q'land: Meringa (Nov., 1 ♂, Goldfinch), Kuranda (1 ♂ in Coll. Turner, and 1 ♀ from the same locality in the South Australian Museum). The species has a wide range, extending from West Africa to Formosa, and no doubt throughout the Malayan Archipelago, and to Papua.

## 14. PINGASA CHLORA. Pl. xv, fig. 9.

*Phalaena chlora*, Stoll, in Cramer, *Pap. Exot.*, 4, 1782, 233, t. 398, f. C.—*Terpna chlora*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 638.—*Pingasa chlora*, Prout, *Gen. Insect.*, fasc. 129, 1912, 31.

It seems unnecessary to give the full synonymy of this well-known and wide-ranging species. I have, therefore, given the original reference, together with Dr. Turner's, and Mr. Prout's in *Genera Insectorum* which supplies full references.

Queensland: Cape York (Barnard), Herberton, Atherton, Cairns, Herbert River, Townsville, Dunk Island, Palm Island, Rockhampton, Nambour, Brisbane, Mt. Tambourine, Stradbroke Island, Coolangatta.

## 15. PINGASA ATRISCRIPTA. Pl. xv, fig. 1.

*Pingasa atriscripta*, Warren, *Nov. Zool.*, 6, 1899, 19.—*Hypochroma munita*, Lucas, *Proc. Roy. Soc. Q'land*, 16, 1901, 78.—*Pingasa atriscripta*, Prout, *Gen. Insect.*, fasc. 129, 1912, 33; Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922.

Q'land: Cape York (May, Barnard), Cairns.

This species is readily distinguished from the others of the group by its green colour, with black lines. I suspect that Warren's *P. angulifera*, from Fergusson Island, may be the female of this species.

## 16. PINGASA BLANDA. Pl. xv, fig. 2.

*Pseudoterpna blanda*, Pagens, *Zoologica*, 29, 1900, 151.—*Pingasa acutangula*, Warren, *Nov. Zool.*, 10, 1903, 352.—*P. blanda*, Prout, *Gen. Insect.*, fasc. 129, 1912, 33.—*P. acutangula*, Prout, *Gen. Insect.*, fasc. 129, 1912, 33.—*P. blanda*, Prout, *Nov. Zool.*, 23, 1916, 193.—*P. acutangula*, Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 280.

Q'land: Coen River, Kuranda, Meringa (Mar., Burns).

Easily separated from the other grey species by the extremely deep dentations of the lines, the dentation of the first line in the cell of the forewing extending to, and partly enclosing, the cell spot.

## 17. PINGASA CINEREA. Pl. xv, fig. 3.

*Pingasa cinerea*, Warren, *Nov. Zool.*, 1, 1894, 382.—*Pseudoterpna singularis*, Kershaw, *Vict. Nat.*, 14, 1897, 104.—*Skorpisthes unda-scripta*, Lucas, *Proc. Roy. Soc. Q'land*, 15, 1900, 143.—*Terpna cinerea*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 639.—*Pingasa cinerea*, Prout, *Gen. Insect.*, fasc. 129, 1912, 33.

Q'land: Westwood, Nambour, Caloundra, Toowoomba, Brisbane; N. S. Wales: Mittagong (April, diminutive specimen); Victoria: Narracan.

The unusual rest attitude has been already remarked.

*Group 2. Hindwings in ♂ rounded, tornus not produced. Scale tufts extending into the subterminal area of hindwings, and the base of forewings.*

*Key to Species.*

- |  |                   |
|--|-------------------|
| 1. Hindwings beneath bright orange towards the base .....  | 2                 |
| Hindwings beneath not bright orange towards the base ..... | 3                 |
| 2. Subterminal bands beneath bright purple .....           | <i>multicolor</i> |
| Subterminal bands beneath rich black .....                 | <i>emiliaria</i>  |
| 3. Face clothed with fine velvety projecting hairs .....   | <i>paroptila</i>  |
| Face not so .....  | 4                 |

4. Lower third of face free from scales, protruding, shining like varnish ..... 5  
 Lower third of face evenly scaled ..... 6
5. Upperside brown or reddish-brown ..... *deteriorata*  
 Upperside pale mossy green irrorated with fuscous ..... *calliglauca*  
 Upperside green-whitish, lines fuscous with red blotches ..... *conspurcata*
6. Upperside rich mossy green ..... 7  
 Upperside not rich mossy green ..... *erebata*
7. Underside whitish, more or less mottled with fuscous; discal spots large; subterminal band broad and ill-defined ..... *muscosaria*  
 Underside milky white, not mottled; discal spots of hindwing usually absent in ♂, linear in ♀; subterminal bands narrow, well defined ..... *bryophylla*

## 18. PINGASA EMILIARIA.

*Hypochroma emiliaria*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 280.—*H. aurantiacea*, Lucas, *Proc. Linn. Soc. N. S. Wales*, (2) 6, 1891, 297.—*H. subornata*, Warren, *Nov. Zool.*, 3, 1896, 360.—*H. purpurifera*, Warren, *Nov. Zool.*, 6, 1899, 18.—*H. purpurissata*, Lucas, *Proc. Roy. Soc. Q'land*, 16, 1901, 77.—*H. assidens*, Lucas, *Proc. Roy. Soc. Q'land*, 16, 1901, 79.—*Terpna emiliaria*, Turner, *Proc. Linn. Soc. N. S. Wales*, 35, 1910, 636.—*Hypodoxa emiliaria*, Prout, *Gen. Insect.*, fasc. 129, 1912, 34.

Q'land: Prince of Wales Is., Thursday Is., Cape York, Cooktown, Cairns, Kuranda, Cardwell, Dunk Is., Stannary Hills, Herberton, Meringa, Gympie, Brisbane; N. S. Wales: Lismore.

## 19. PINGASA MULTICOLOR.

*Hypochroma multicolor*, Warren, *Nov. Zool.*, 6, 1899, 17.—*Hypodoxa multicolor*, Prout, *Gen. Insect.*, fasc. 129, 1912, 34.

Q'land: Cape York (Nov., Barnard).

Mr. Barnard's specimen, a ♂, is in poor condition, but I have little doubt as to the correctness of my determination. The species may be distinguished from *P. emiliaria*, which it resembles, by the different form of the second line of the forewings, the simple portion of the antennae being longer, and the rich purple subterminal lines beneath. The species was originally described from St. Aignan.

The following two species are remarkably similar and, except for a difference in size, and a certain distinctive appearance on the upper side, very difficult to define in a written description; they might well (as has been the case hitherto) be considered as forms of one rather variable species. I have carefully examined the genitalia and, as may be observed from Text-figures 1 and 2, there is evidence to establish a second species. The problem then arises as to which is the true *muscosaria* of Guenée. From a careful study of the original description of the ♂, and the figure of the ♀, I have come to the conclusion that the smaller species, usually found in more or less dry sandstone forest country, and ranging from Tasmania as far north as Ebor, is the true *muscosaria*, and that the larger species, ranging from Sydney northwards to Mackay (Q'land), is as yet undescribed. This conclusion is supported when one considers that, almost without exception, the whole of the Australian species described by Guenée were obviously received from sources either in Tasmania or South-Eastern Australia. Scarcely a single tropical or subtropical species of Geometer was described by him from Australian specimens, though there are many species named by him, but from examples captured in other countries. In order to simplify the determination of the two species it is hoped that the following table setting out the admittedly rather slender outward distinctions between the two, will be found helpful.

*P. muscosaria* Guenée.

Expanse. ♂, 32-38 mm.; ♀, 38-44 mm.

Markings. Upperside: lines rather indistinct, often represented by black dots on veins. Discal mark of forewing above straight.

Underside: whitish areas more or less mottled with grey scales.

Discal spot of forewing beneath large, round.

Discal spot of hindwing beneath oval.

Subterminal bands broad, the anterior margins ill-defined.

*P. bryophylla*, n. sp.

Expanse. ♂, 41-49 mm.; ♀, 52 mm.

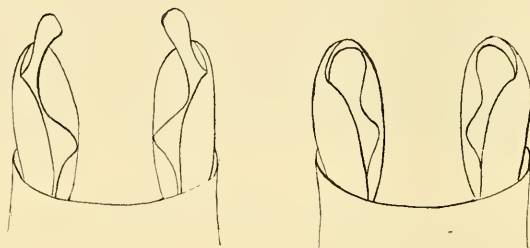
Markings. Upperside: lines clearly defined, discal mark of forewing above sinuate.

Underside: whitish areas scarcely mottled.

Discal spot of forewing beneath smaller, oval.

Discal spot of hindwing beneath linear or absent.

Subterminal bands narrower, well defined.



1  
Text-fig. 1.—Genitalia of *Pingasa bryophylla*, ♂. Ventral aspect, showing gonocoxites or valves.

2  
Text-fig. 2.—Genitalia of *Pingasa muscosaria*, ♂. Ventral aspect, showing gonocoxites or valves.

## 20. PINGASA MUSCOSARIA. Pl. xiv, fig. 14; Pl. xvi, fig. 5.

*Hypochroma muscosaria*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 281, Pl. 6, f. 3.—*H. cetraria*, Felder, *Reise Novara*, Lep. Het., 1875, t. 125, f. 7, 7a.—*H. squamata*, Felder, *Reise Novara*, Lep. Het., 1875, t. 126, f. 14.

♂, 32-38 mm. ♀, 38-44 mm. Face green, irrorated towards the vertex with fuscous scales. Palpi: basal joint white, a black lateral mark towards the apex, second joint green above, whitish irrorated with fuscous and crimson scales beneath, terminal joint smooth, green. Thorax smooth, green, irrorated with fuscous scales, beneath densely hairy, abdomen with three or four double crests on the basal segments, green irrorated with fuscous scales, lateral tufts whitish. Legs: anterior pair, coxae beneath crimson, femur, tibiae and tarsi fuscous, the last ringed with whitish at the joints; median pair whitish, tibiae darker; posterior pair somewhat dilated, whitish. Forewings: mossy green, irrorated with fuscous, and often suffused with brownish; lines rather indistinct, fuscous, first from costa at about one-fourth to dorsum at one-third, three times curved outwards, sometimes preceded by a fuscous or brownish suffusion; a more or less obscure linear discal transverse mark; the second line from costa at before three-fourths, at right angles to costa, and dentated on each vein to vein  $M_3$ , thence curved inwards, dentate on each vein to dorsum at before two-thirds; a dentate whitish subterminal line from costa before apex to dorsum before tornus; an interrupted terminal fuscous line thickened between veins; cilia greenish-whitish, darker

towards the base. The discal and postmedian areas often suffused with fuscous or reddish-brown. Hindwings: colour and suffusions as in forewings; first line absent, discal mark obscure, linear, second line as in forewings. Beneath whitish, more or less mottled with fuscous, discal spot large, round; subterminal band fuscous, ill-defined, enclosing an incomplete series of subterminal dots. Hindwings as above, discal spot oval, present in both sexes, larger in ♀.

N. S. Wales: Ebor, Sydney (March, April, September, October, November, December), Blue Mts. (December), Mittagong (February), Mt. Kosciusko, 3000 feet; Victoria: (Ferntree Gully), Gembrook (November), Warburton; Tasmania: (Snug River) Hobart (January).

21. *PINGASA BRYOPHYLLA*, n. sp. Pl. xiv, fig. 13; Pl. xvi, fig. 4.

♂, 41-49 mm. ♀, 52 mm. Face green, irrorated with fuscous scales. Palpi: basal joint whitish with a fuscous lateral mark towards the apex, second joint green, fringed beneath with whitish scales, terminal joint green.

Thorax smooth, green, irrorated with fuscous scales; beneath densely hairy. Abdomen green with three or four double crests on the basal segments, lateral tufts whitish. Legs: anterior pair, coxae greenish beneath, femur, tibiae and tarsi whitish, median and posterior pairs whitish. Forewings mossy green, irrorated with fuscous and suffused with reddish-brown, lines black, clearly defined, first from costa at about one-fourth to dorsum at one-third, three times curved outwards, preceded by a reddish suffusion, a distinct sinuate linear transverse discal spot, second line from costa at before three-fourths, at right angles to costa, and dentate on each vein to vein  $M_3$ , thence curved inwards, dentate on each vein to dorsum at about one-half; an obscure whitish subterminal dentate line from costa before apex to dorsum before tornus; an interrupted terminal fuscous line thickened between veins; cilia greenish, towards the base irrorated with fuscous scales. The area beyond the second line suffused with reddish. Hindwings: colour and reddish suffusions as in forewings, first line absent, discal mark obscure, second line as in forewings. Beneath, milky white, hardly mottled. Discal mark in forewings oval, somewhat thickened, in hindwings, often absent in ♂, very narrow linear or absent in ♀. Subterminal bands rather narrow, clearly defined, enclosing an incomplete series of white spots.

Q'land: Eungella, Brisbane, Toowoomba (September, March), Stanthorpe, National Park (2,500 ft.); N. S. Wales: Port Macquarie (April), Allyn River (December), Wentworth Falls (April), Sydney (April).

Holotype and allotype in collection Goldfinch.

22. *PINGASA PAROPTILA*. Pl. xvi, fig. 7.

*Pseudoterpna paroptila*, Turner, *Trans. Roy. Soc. S. Aust.*, 30, 1906, 130.—*Terpna paroptila*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 638; Prout, *Gen. Insect.*, fasc. 129, 1912, 40; Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 281.

Through the kindness of Mr. G. Lyell I have had the opportunity to examine the type which still remains unique. The wings are tufted, but it differs from the other Australian species of this genus in the frons being clothed with fine and rather long velvety hairs, apparently somewhat as in *Dindica*. The type is in rather poor condition, antennae missing and the thoracic crests (if any) have been abraded. The first line being straight is unusual in the group.

23. *PINGASA DETERIORATA*. Pl. xiv, fig. 16; Pl. xvi, fig. 6.

*Hypochroma deteriorata*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 441.—*H. horridata*, Walker, *Cat. Lep. Brit. Mus.*, 26, 1862, 1544.—*Boarmia nigraria*, Felder, *Reise Novara*, Lep. Het., 1875, t. 126, f. 1.—*Terpna deteriorata*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 668.—*Hypodoxa deteriorata*, Prout, *Gen. Insect.*, fasc. 129, 1912, 34.

This and the two following species are closely related; indeed, I think it doubtful whether their separation is justified, but since, as far as is known, their separate types of markings remain constant within the known range of each form, there is reason to allow them to remain of specific rank. In each species the lower third of the face is bare of scales, roundly prominent, and shining black as though varnished. They are the only members of this group in which any marked peculiarity of the frons has been developed, although in the Boarmiidae and Oenochromidae such development is not at all unusual, particularly amongst those species found in the dry interior of Australia.

N. S. Wales: Sydney, Blue Mts., Mittagong.

24. *PINGASA CALLIGLAUCA*. Pl. xiv, fig. 15.

Turner, *Trans. Roy. Soc. S. Aust.*, 50, 1926, 125.

Q'land: Westwood (Goldfinch), Toowoomba, Stanthorpe.

Dr. Turner informs me that the specimen recorded from Ebor, N.S.W., is really *P. muscosaria* Gn.

25. *PINGASA CONSPURCATA*. Pl. xiv, fig. 17.

*Hypochroma conspurcata*, Lucas, *Proc. Roy. Soc. Q'land*, 13, 1898, 68.—*Pseudoterpna myriosticta*, Turner, *Trans. Roy. Soc. S. Aust.*, 28, 1904, 223.—*Terpna myriosticta*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 638.

I have examined Lucas's type which is undoubtedly conspecific with Turner's species, though the blotches beyond the second line are more red. The ♂ is unknown, but I have a specimen from Southport, Q'land, which I suspect may be the male. It is somewhat paler than Sydney specimens, and the vertex and upper part of the face are whitish.

26. *PINGASA EREBATA*. Pl. xvi, fig. 11.

*Hypochroma erebusata*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 443.—*H. erebata*, Meyrick, *Proc. Linn. Soc. N.S.W.*, (2) 2, 1888, 914.—*Terpna erebata*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 638.—*Hypodoxa erebusata*, Prout, *Gen. Insect.*, fasc. 129, 1912, 35.

N. Aust.: Darwin; Q'land: Meringa, Duaringa, Yeppoon, Gympie, Caloundra, Brisbane, Southport.

## 8. Genus TERPNA.

H.-Schaffer, *Samml. Aussereur. Schmett.*, 1, 1856, 26, 37.—*Hypochroma* (part), Guenée, *Spec. Gen. Lep.*, 9, 1858, 275.—*Pachyodes*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 282.—*Pseudoterpna*, Meyrick, *Trans. Ent. Soc. Lon.*, 1889, 496.—*Absala*, Swinhoe, *Ann. Mag. Nat. Hist.*, (6) 12, 1893, 149.—*Archaeopseustes*, Warren, *Nov. Zool.*, 1, 1894, 380.—*Calleremites*, Warren, *Nov. Zool.*, 1, 1894, 384.—*Psilostagma*, Warren, *Nov. Zool.*, 1, 1894, 678.—*Terpna* (part), Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 634; *Terpna*, Prout, *Gen. Insect.*, fasc. 129, 1912, 38; *Terpna*, Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 281.

Face smooth, sometimes somewhat prominent. Tongue well developed. Palpi moderate or long, porrect or ascending, basal and second joints densely rough-scaled beneath, terminal joint moderately smooth. Antennae in ♂ bipectinate,

towards apex simple, in ♀ simple. Thorax smooth or slightly crested, beneath hairy. Abdomen with dorsal crests, or smooth, in ♂ often with lateral tufts on the terminal segments. Posterior tibiae with all spurs present, in ♂ sometimes dilated with a groove and tuft of hairs on inner side. Hindwing without basal costal expansion, frenulum and retinaculum in ♂ strongly developed, in ♀ frenulum represented by a tuft of hairs more or less strongly developed. Forewings:  $R_1$  from cell and free,  $R_{2-3-4-5}$  stalked from cell,  $M_1$  separate,  $M_2$  remote from  $M_1$ ,  $M_3$  and  $Cu_{1a}$  separate. Hindwings:  $Sc + R_1$  approximated to cell near base, and rapidly diverging,  $Rs$  and  $M_1$  separate,  $M_2$  and  $Cu_{1a}$  separate. Discocellulars angled on vein  $M_2$ .

Type, *T. haemataria* H.-Sch., from India.

*Key to Species.*

1. Upperside ochreous, sometimes slightly tinged with greenish ..... 2  
Upperside green ..... 3
2. Abdomen with three strong abdominal crests, markings beneath black. Expanse 28-34 mm. .... *melaleucaea*  
Abdomen with two strong abdominal crests, markings beneath usually crimson. Expanse 34-44 mm. .... *quadrilinea*
3. Beneath with basal areas of both wings orange ..... *saturataria*  
Beneath not so ..... 4
4. Beneath with more or less broad crimson subterminal bands ..... 5  
Beneath whitish or pale ochreous, with more or less heavy fuscous markings .... 6
5. Terminal line of both wings above, complete, continuous ..... *subrubescens*  
Terminal line absent from both wings ..... *viridicata*
6. Upper side more or less suffused with pink ..... 7  
Upper side without pink suffusion, at most scattered reddish scales on the veins .. 8
7. Hindwings with subcostal area suffused with pink, forewings with two small subterminal pink blotches ..... *metarhodata*  
Both wings mostly suffused with pink ..... *rhodochlora*
8. Antennae in ♂ with strong scale notch at base ..... *hypochromaria*  
Antennae not so ..... 9
9. Face and thorax spotted with black, wings with no reddish scales ..... *unitaria*  
Face and thorax not spotted with black, reddish scales on veins ..... *unitaria*

27. TERPNA VIRIDICATA. Pl. xiv, fig. 12.

*Hypochroma viridicata*, Lucas, Proc. LINN. Soc. N.S.W., (2) 4, 1890, 1094.—*Terpna viridicata*, Turner, Proc. LINN. Soc. N.S.W., 35, 1910, 641.—*Aeolochroma viridicata*, Prout, *Gen. Insect.*, fasc. 129, 1912, 36.—*Pingasa viridicata*, Turner, *Trans. Roy. Soc. S. Aust.*, 50, 1926, 125.

Q'land: Buderim Mt. near Nambour, Brisbane, Bunya Mts.; N. S. Wales: Pt. Macquarie (April, Goldfinch).

I have no ♂ for examination, but Dr. Turner informs me that the species is correctly placed in this genus, there being no tufts of raised scales on the wings other than the discal spot of the forewings.

This species is the most perfect imitation of the kind of lichen that one finds growing in small patches on the trunks of smooth barked rain forest trees that I have ever seen. At Port Macquarie I had the good fortune to find a freshly emerged ♀ which an experienced observer failed to perceive after having been told that a moth was on the stump.

28. TERPNA HYPOCHROMARIA. Pl. xiv, figs. 5, 6.

*Cleora ? hypochromaria*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 234.—*Hypochroma hypochromaria*, Meyrick, Proc. LINN. Soc. N.S.W., (2) 2, 1888, 909.—*Pseudoterpna*

*bryophanes*, Turner, *Trans. Roy. Soc. S. Aust.*, 28, 1904, 222.—*Terpna hypochromaria*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 641.—*Aeolochroma hypochromaria*, Prout, *Gen. Insect.*, fasc. 129, 1912, 36.—*Terpna hypochromaria*, Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 282.

The unusual notch at the base of the antennae is pointed out by Turner. A somewhat similar, but much smaller structure is present in *T. unitaria*.

Q'land: Cape York, Gayndah, Nanango, Brisbane, Toowoomba, Bunya Mts., Coolangatta; N. S. Wales: Lismore, Pt. Macquarie, Sydney, Stanwell Park.

29. TERPNA SUBRUBESCENS. Pl. xv, figs. 17, 18.

*Hypochroma subrubescens*, Warren, *Nov. Zool.*, 3, 1896, 101.—*Terpna subrubescens*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 642.—*Aeolochroma subrubescens*, Prout, *Gen. Insect.*, fasc. 129, 1912, 37.

Q'land: Townsville, Mackay, Westwood, Bundaberg, Toowoomba.

30. TERPNA UNITARIA. Pl. xiv, fig. 18; Pl. xv, fig. 19; Pl. xvi, fig. 8.

*Tephrosia unitaria*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 417.—*Hypochroma acanthina*, Meyrick, *Proc. Linn. Soc. N.S.W.*, (2) 2, 1888, 910.—*Terpna acanthina*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 641.—*Aeolochroma unitaria*, Prout, *Gen. Insect.*, fasc. 129, 1912, 36.—*Terpna unitaria*, Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 281.

Q'land: Duaringa, Toowoomba; Tasmania.

Prout, who has no doubt seen both Walker's and Meyrick's types, is of the opinion that they represent one species. There is a male, 42 mm. (Pl. xvi, fig. 8) in the Macleay Museum at the Sydney University labelled "Tasmania", which would quite well agree with Walker's very loose description. It is, unfortunately, in poor condition, being much faded, the whole of one and most of the other antenna broken off and the thoracic and abdominal crests (if any) abraded. This, I believe, may be the typical *unitaria* of Walker. I have also, for examination, two male specimens from Toowoomba which agree exactly with Meyrick's description. Whilst the Toowoomba specimens and the Tasmanian one resemble one another rather closely, I would not be too confident in asserting that they were conspecific. I have no knowledge of the condition of Walker's type, but have figured both the Toowoomba and the Tasmanian specimens in the hope that some worker in England may be able to settle the point. For the present I am content to follow Prout, but have little doubt that when fresh material is obtained from Tasmania, *acanthina* will be restored to specific rank.

31. TERPNA SATURATARIA. Pl. xiv, figs. 3, 4.

*Hypochroma saturataria*, Walker, *Cat. Lep. Brit. Mus.*, 35, 1866, 1593.—*H. perfolvata*, Warren, *Nov. Zool.*, 6, 1899, 326.—*Pseudoterpna saturataria*, Swinhoe, *Lep. Het. Oxf. Mus.*, 2, 1900, 384, t. 5, f. 6.—*Hypochroma saturataria* ab. *perviridata*, Warren, *Nov. Zool.*, 10, 1903, 351.—*Aeolochroma saturataria*, Prout, *Gen. Insect.*, fasc. 129, 1912, 36.—*Terpna saturataria*, Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 281.

Q'land: Cape York (Barnard).

This species is readily distinguished from the other mossy green species by the basal areas of the wings beneath being coloured rich orange, the subterminal areas being fuscous.



32. *TERPNA MNIARIA*, n. sp. Pl. xiv, figs. 1, 2.

♂, 34-38 mm. ♀, 36-42 mm. Face black, with a broad white band above middle and a narrow white band along the lower edge, vertex greenish-white. Palpi: basal segment white, with a black lateral spot towards apex, second joint black with whitish scales at apex, terminal joint black, rather short. Antennae: basal joint white, the shaft and pectinations fuscous. Thorax: patagiae green with a black spot between, tegulae black at base, otherwise green, thorax green, with two longitudinal curved black marks, a few spreading green scales tending to form a small posterior crest, hairy beneath. Abdomen whitish-green, with a double row of black spots on segments one to four, usually two small green crests, lateral tufts on posterior segments whitish, anal tuft whitish. Legs: anterior and median pairs fuscous, blotched with whitish and ringed at joints of tarsi; posterior pair whitish irrorated with black. Forewings green, irrorated with fuscous, extreme costal edge white, heavily strigulated with black, lines black; a short black dash at base, a series of disconnected black spots from costa close to base to dorsum; first line from costa before one-fourth to dorsum before one-third, three times curved outwards, discal spot black, whitish centred; second line from costa before three-fourths, angulated below costa, thence curved outwards and dentate to vein  $Cu_{1a}$  below which it curves inwards to dorsum at about two-thirds, followed posteriorly by a fine white line interrupted in middle; an indistinct whitish fine subterminal line from costa before apex to dorsum before tornus, enclosing five or six black wedge-shaped spots below costa; an interrupted black terminal line, forming lunules between the veins; cilia white barred with black at vein endings. A blackish suffusion usually present from middle of second line to termen, and a similar suffusion above tornus. Hindwings: colour as forewings, first line absent, discal spot black, second line as in forewings, subterminal line whitish, not continuous, enclosing two black spots above the tornus, and a large double spot above middle. Terminal line and cilia as in forewing. Beneath, white, more or less densely irrorated with fuscous blotches, broad fuscous subterminal bands enclosing in the forewings a series of small white dots, and at apex and middle of termen, obscure whitish blotches; first and second lines as above, discal dots black.

N. S. Wales: Sydney (July), Mittagong (November, December, March); Victoria: Lorne (March, Lyell).

Holotype and allotype in collection Goldfinch.

The species seems to be rare, except at Mittagong where it is taken rather commonly at night with a lamp. This species, along with several others of the group, is commonly found resting on the foliage of the Native Cherry (*Exocarpus*).

33. *TERPNA RHODOCHLORA*, n. sp. Pl. xvi, fig. 18.

♀, 32 mm. Face pale green, slightly pinkish tinged. Palpi: basal joint white, clothed with long scales becoming fuscous towards the tips, second and terminal joints black, clothed above with long crimson scales. Antennae reddish-brown, heavily barred with black towards the base; thorax pale green, pinkish in the centre; abdomen pink, with scattered greenish fuscous scales. Legs: anterior coxae crimson anteriorly, tibiae and tarsi fuscous, barred with pinkish ochreous, middle legs absent (broken), posterior pair ochreous irrorated with fuscous dots. Forewings pale green, broadly suffused with pale pink (it is difficult to decide whether to call the wings pink with green suffusions or the reverse, but the ♂, when discovered, will probably show that the ground colour is really green), irrorated and strigulated along the costa with greenish fuscous. Lines black, an

indistinct black transverse bar near base, first line from costa at about one-sixth, slightly outwards bowed in cell to dorsum at about one-third, an elongate linear black discal spot, second line from costa at about three-fourths, almost straight to vein  $M_3$ , thence three times curved inwards to vein  $1A + 2A$ , thence outwards to dorsum at about two-thirds, an indistinct white dentate subterminal line from costa before apex not reaching the tornus; a fine black terminal line; cilia fuscous with a pale central line. The pink suffusion almost replaces the green colour in a large central area enclosing the discal spot, and before the apex and above the tornus. Hindwings: as in forewings, basal bar and first line absent; discal spot very elongate, linear; subterminal and terminal lines and cilia as in forewings. Beneath, forewings ochreous whitish, towards the base suffused with pinkish and irrorated with fuscous, first and second lines present, discal spot consists of an elongate double mark; beyond the second line a broad fuscous suffusion, becoming crimson towards the outer margin, and beneath the apex, but not reaching the tornus. Hindwing as forewing, but discal spot is not double.

Lismore, N. S. Wales, 1 ♀, received from Mr. Robinson.

Type in collection Goldfinch.

This species somewhat resembles *T. metarhodata*, but may be distinguished by the different shape of the second line in both wings, the discal spot being linear, and the crimson subapical suffusion beneath. It is probably nearest to *T. subrubescens*, from which it differs in the shape of the first and second lines.

#### 34. TERPNA METARHODATA. Pl. xv, fig. 7.

*Scotosia metarhodata*, Walker, *Cat. Lep. Brit. Mus.*, 26, 1862, 1724.—*Hypochroma metarhodata*, Meyrick, *Proc. Linn. Soc. N.S.W.*, (2) 2, 1888, 908.—*Terpna metarhodata*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 640.—*Aeolochroma metarhodata*, Prout, *Gen. Insect.*, fasc. 129, 1912, 36.

Q'land: Gayndah, Brisbane; N. S. Wales: Port Macquarie, Newcastle, Sydney, Woodford; Victoria: Sale, Melbourne.

#### 35. TERPNA QUADRILINEA. Pl. xv, fig. 13.

*Hypochroma quadrilinea*, Lucas, *Proc. Roy. Soc. Q'land*, 8, 1892, 80.—*Actenochroma ochrea*, Warren, *Nov. Zool.*, 3, 1896, 360.—*Hypochroma ochrea*, Warren, *Nov. Zool.*, 4, 1897, 207.—*Pseudoterpna quadrilinea*, Swin., *Trans. Ent. Soc. Lond.*, 1902, 669.—*Terpna quadrilinea*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 642.—*Aeolochroma quadrilinea*, Prout, *Gen. Insect.*, fasc. 129, 1912, 36.

♂, 34-38 mm. ♀, 40-44 mm. Face white, sometimes ochreous tinged, a red spot on each side above lower margin; antennae ochreous-white; palpi over 2, basal joint white, second joint crimson, beneath white; terminal joint one-half, crimson; thorax and abdomen ochreous-white, two strong rounded crests on third and fourth segments and often minute crests on fifth and sixth segments, in ♀ lateral tufts on terminal segments. Legs: anterior pair white or brownish tinged, median pair white, with crimson spot on apex of femur, posterior pair white, hardly dilated. Forewings: ochreous-whitish, sparsely irrorated with brownish-fuscous scales, markings very obscure, often obsolete; a few brown strigulae along costa, first line, when present, from a fuscous blotch on costa at about one-fourth, more or less straight to dorsum at before middle, more often in the ♀ followed by an obscure brownish suffusion, strongest towards the dorsum; discal

spot represented by a few lead-coloured scales surrounded by a few fuscous scales, sometimes obsolete, second line obscure, often obsolete, from costa at about three-fourths, curved inwards below costa, thence curved outwards and waved to dorsum before tornus, usually followed by an obscure brownish suffusion containing two brown dashes above middle, and sometimes a rounded brownish blotch above tornus; subterminal line usually absent, cilia whitish-ochreous, sometimes barred with brownish in middle. Often a distinct brown or fuscous spot between discal spot and mid costa. Hindwings: colour as in forewings, first line absent, sometimes an obscure discal pale fuscous spot; second line very indistinct, indicated by a series of brownish or fuscous spots on veins; sometimes a very obscure subterminal brownish-fuscous suffusion, cilia whitish ochreous. Beneath ochreous-whitish, markings crimson. Forewings: discal spot black, edged with crimson, second line from costa well beyond origin of vein  $R_4$ , to above dorsum before tornus, followed by a broad crimson suffusion, somewhat mixed with fuscous above middle, not reaching termen. A longitudinal crimson blotch below cell. Hindwings: discal spot and second line crimson, a broad crimson subterminal band. The crimson markings of the underside are sometimes replaced by brownish fuscous.

Q'land: Meringa (June and July, 2 ♀), Yeppoon (November, 1 ♂), Rockhampton (October, 1 ♀); N. S. Wales: Lismore (February, 1 ♀), Port Macquarie (2 ♀), Sydney (December, January and March, 6 ♂).

The above localities are from the specimens in my own collection. The species is also known from the following additional localities: Q'land: Kuranda, Mackay, Gayndah, Brisbane; N. S. Wales: Byron Bay.

The species is attached to *Melaleuca leucadendron*, but may feed on other paper bark trees. In two ♀ specimens from Meringa the first line is followed by a broad brownish-crimson suffusion.

36. TERPNA MELALEUCAE. n. sp. Pl. xv, fig. 14.

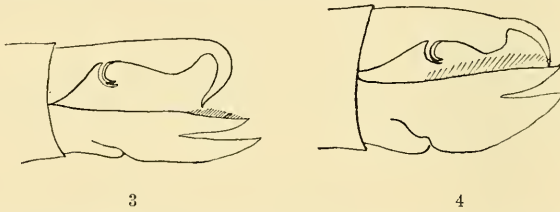
♂, 28-33 mm. ♀, 32-34 mm. Face white, a narrow black bar below middle; vertex ochreous-whitish, antennae grey, palpi less than 2, basal joint white, second joint black laterally and beneath, above whitish-ochreous, hairy, terminal joint very short, ochreous. Thorax smooth, ochreous-whitish, usually slightly tinged with greenish; abdomen with three strong, rounded dorsal crests on second, third and fourth segments, ochreous-whitish, irrorated with black scales, in ♂ lateral tufts on terminal segments. Legs: anterior pair ochreous, the tarsal joints ringed with black, median pair ochreous-whitish with a distinct black spot on the inner side at the apex of the femur, posterior pair whitish-ochreous, hardly dilated. Forewings triangular, termen evenly bowed, ochreous, often slightly greenish tinged, sparsely irrorated with black scales, markings often rather obscure, fuscous; costa strigulated with short fuscous marks to near apex, usually a minute black dash at base, first line from an elongate black spot on costa at beyond one-fourth, curved outwards to beyond middle of cell, thence almost straight to dorsum at before one-half, discal spot obscure, elongate, composed of leaden-coloured scales surrounded by fuscous scales; second line from a black spot on costa at before three-fourths, curved outwards to vein  $M_3$ , thence usually obscure to dorsum just before tornus, followed in middle by a thin leaden-coloured line; usually a very indistinct whitish-ochreous waved subterminal line from before apex to above tornus, between this and second line usually an obscure brownish suffusion; a more or less complete series of black terminal

dots between the veins. A brownish-fuscous shade following the first line is often present above the dorsum. Hindwings: colour as forewings, first line absent, a very obscure linear fuscous discal spot; second line often indistinct, but always marked by a series of black dots on the veins, a very obscure pale whitish-ochreous subterminal line usually with a suffused brownish blotch above middle of termen. Terminal black spots and cilia as in the forewings. Beneath, forewing whitish, costa heavily blotched with black, except towards the apex, discal spot large, black; second line arising from point of origin of vein  $R_1$ , almost reaching the dorsum, followed by a broad fuscous suffusion, sometimes pinkish tinged; between this and the termen, usually two obscure fuscous suffusions above and below middle. A broad longitudinal fuscous blotch, sometimes tinged with pink below cell. Hindwing whitish, first line absent, discal spot large, black, second line from costa before apex to dorsum, followed by a broad irregular sometimes pinkish tinged fuscous band not reaching the termen.

Q'land: Gayndah, Brisbane; N. S. Wales: Port Macquarie (April, 1 ♂, 3 ♀), Richmond (September, 1 ♂), Mittagong (November and March, 5 ♂).

Holotype and allotype in collection Goldfinch.

For a long time I have been in doubt as to whether the separation of this species from *T. quadrilinea* could be justified. One felt a certain amount of diffidence in basing a new species on the presence of an extra abdominal crest and slight differences in coloration and size. However, I believe that the differences



Text-fig. 3.—Genitalia of *Terpna melaleuca*, ♂. Lateral aspect. Note the slender *gonocoxites* and the comparatively few bristles composing the *harpes*.  
Text-fig. 4.—Genitalia of *Terpna quadrilinea*, ♂. Lateral aspect. Note the strong and heavy *gonocoxites* and the many and strong bristles forming the *harpes*.

disclosed by a study of the genitalia (Text-figures 3 and 4) leave no room for doubt as to the existence of two separate but closely allied species having the same general habit. This species is also attached to *Melaleuca*, as the name implies, but apparently to a different species of the plant genus.

#### 9. GENUS AEOLOCROMA.

Prout, *Gen. Insect.*, fasc. 129, 1912, 35; Turner, *Proc. Roy. Soc. S. Aust.*, 46, 1922, 281.

Face slightly projecting, palpi moderate, obliquely ascending, basal joint long haired beneath, second joint slightly hairy beneath, terminal joint smooth, rather short. Tongue developed. Antennae in ♂ slightly serrate, ciliated in tufts, in ♀ simple. Thorax not crested, beneath densely hairy. Abdomen with several median dorsal crests, terminal segments with lateral tufts. Posterior tibiae with all spurs present, not dilated. Hindwings without basal costal expansion; frenulum and retinaculum in ♂ well developed, in ♀ represented by a tuft of long hairs.

Forewings:  $R_1$  free from cell or anastomosing with Sc and  $R_2$ ,  $R_{2-3-4-5}$  stalked from apex of cell,  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  separate. Hindwings with Sc +  $R_1$  approximated to cell near base, diverging before middle, Rs and  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  separate.

Type, *Aeolochroma turneri* Warren.

37. AEOLOCHROMA TURNERI. Pl. xvi, figs. 9, 10.

*Hypochroma turneri*, Lucas, Proc. LINN. Soc. N.S.W., (2) 4, 1890, 1096.—*Actenochroma turneri*, Turner, Proc. LINN. Soc. N.S.W., 35, 1910, 633.—*Aeolochroma turneri*, Prout, Gen. Insect., fasc. 129, 1912, 36; Turner, Proc. Roy. Soc. S. Aust., 46, 1922, 281.

Q'land: Kuranda (May and June), Meringa (November), Mackay. Also from New Guinea.

10. Genus OENOCHLORA.

Warren, Nov. Zool., 3, 1896, 353.—*Euarestus*, Lucas, Proc. Roy. Soc. Q'land, 15, 1900, 142.—*Oenochlora*, Turner, Proc. LINN. Soc. N.S.W., 35, 1910, 643; Prout, Gen. Insect., fasc. 129, 1912, 57.

Face smooth. Tongue well developed. Palpi stout, rather long, obliquely ascending; second joint smooth, or only slightly roughened beneath; terminal joint stout and rather short in both sexes. Antennae in ♂ pectinated nearly to apex; in ♀ serrate. Thorax and abdomen not crested; thorax densely hairy beneath, abdomen in ♂ with slight lateral tufts on terminal segments. Posterior tibiae with all spurs present; in ♂ strongly dilated with internal groove and tuft. Hindwings without basal costal expansion; frenulum and retinaculum in ♂ well developed; frenulum in ♀ represented by a tuft of long hairs. Forewings:  $R_1$  from cell anastomosing strongly with Sc and  $R_2$ , sometimes the anastomosis with Sc is replaced by a short connecting bar,  $R_{2-3-4-5}$  stalked,  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  separate. Hindwings: Sc +  $R_1$  closely approximated to cell to beyond middle, Rs and  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  separate. Discocellulars not angled, but rather strongly curved inwards, only slightly oblique.

Type, *O. imperialis* Warren.

I agree with Turner that this genus should be placed in Group 2 in Prout's classification.

38. OENOCHLORA IMPERIALIS.

Warren, Nov. Zool., 3, 1896, 354.—*Euarestus nobilitans*, Lucas, Proc. Roy. Soc. Q'land, 15, 1900, 142.—*E. patrociniatus*, Lucas, Proc. Roy. Soc. Q'land, 15, 1900, 142.—*Oenochlora imperialis*, Turner, Proc. LINN. Soc. N.S.W., 35, 1910, 644; Prout, Gen. Insect., fasc. 129, 1912, 57.

Q'land: Cooktown, Cairns, Kuranda, Eungella, Nambour, Brisbane, Mt. Tambourine, National Park (3,000 ft.); N. S. Wales: Lismore.

11. Genus CYNEOTERPNA.

Prout, Gen. Insect., fasc. 129, 1912, 43.—*Autanepsia*, Turner, Proc. LINN. Soc. N.S.W., 35, 1910, 629 (*praeocc.*, Turner, 1908).

Face clothed with long projecting hairs, an anteriorly directed crest on crown. Tongue well developed. Palpi rather long, porrected, basal and second joints densely hairy beneath, terminal joint long in both sexes. Antennae in ♂ bipectinated, apices simple; in ♀ simple. Thorax not crested, beneath densely

hairy, tegulae clothed with extremely long hairs, exceeding posterior edge of thorax. Abdomen with dorsal crests slightly indicated by some loose spreading hairs, terminal segments in ♂ with lateral tufts. Posterior tibiae with all spurs present, not dilated. Forewings in ♂ with frenulum and retinaculum well developed, in ♀ represented by a strong tuft of hairs. Forewings:  $R_1$  from cell anastomosing with Sc and  $R_2$ ,  $R_{2-3-4-5}$  stalked from cell from well before angle,  $M_1$  and  $M_2$  approximated or connate,  $M_3$  and  $Cu_{1a}$  remote. Hindwings, termen strongly toothed on veins  $M_3-Cu_{1a}-Cu_{1b}-2A$ . Sc +  $R_1$  approximated to cell to middle, diverging rather rapidly, Rs and  $M_1$  separate, Rs from well before angle,  $M_1$  and  $M_2$  closely approximated or connate,  $M_3$  and  $Cu_{1a}$  widely separate; dorsal discocellular strongly curved inwards.

Type, *Hypochroma wilsoni* Felder.

Allied to the following genus.

*Key to Species.*

Upper side fuscous grey, strongly pinkish tinged, subterminal black blotch absent from forewings beneath ..... *alpina*  
 Upper side silvery grey, cilia only, pinkish tinged, terminal black blotch present on forewings beneath ..... *wilsoni*

39. CYNEOTERPNA WILSONI. Pl. xv, fig. 10.

*Hypochroma wilsoni*, Felder, *Reis. Novara*, 1875, t. 125, fig. 4, 4a.—*Autanepsia wilsoni*, Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 630.—*Cyneoterpna wilsoni*, Prout, *Gen. Insect.*, fasc. 129, 1912, 43; Turner, *Trans. Roy. Soc. S. Aust.*, 44, 1922, 279.

Q'land: (Stannary Hills) Herberton; N. S. Wales: Allyn River (December, 1 ♂); Victoria: Gisborne (October, 1 ♂, 1 ♀), Melbourne.

40. CYNEOTERPNA ALPINA, n. sp. Pl. xv, fig. 12.

♂, ♀. 50-52 mm. Face fuscous, a darker transverse bar in middle, vertex dark grey; palpi, basal joints grey irrorated with long black hairs, terminal joint black with a few whitish scales towards apex; antennae whitish, ringed with black, pectinations fuscous; thorax and abdomen greyish fuscous, the abdomen with traces of a double black dorsal line, lateral tufts and anal tuft pinkish tinged. Legs fuscous, whitish ringed at joints. Forewings fuscous grey, tinged throughout with pink, markings obscure, darker fuscous; first line from costa at about one-fifth, outwards to below about middle of cell, thence inwards to vein 1A + 2A, thence again outwards to form a double-toothed projection, thence inwards to dorsum before one-third, discal spot obscure, fuscous; second line from costa at about four-fifths, dentate to vein  $Cu_{1b}$ , thence deeply indented to form a double notch, thence again outwards to vein 1A + 2A, thence inwards again to dorsum at about two-thirds; vein 1A + 2A usually clothed with fuscous scales; an obscure whitish subterminal line from costa before apex, waved to dorsum near tornus; a fine pale fuscous terminal line with fuscous dashes between the veins; cilia grey, pink towards the tips. Hindwings as forewings, first line absent, discal spot obscure, linear; second and subterminal lines as in forewings, terminal line with dashes reduced to dots, cilia pinker. Beneath, forewings smoky grey, paler towards the base and dorsum, beyond the end of the cell pinkish tinged; hindwings, towards the base whitish, slightly pinkish tinged, a large black blotch from costa before apex to above tornus, preceded by a slender pink line not reaching the dorsum, and followed by a narrow white subterminal line, the area between which and the termen suffused with pink.

N. S. Wales: Mt. Koscuisko (5,000 ft., December, 2 ♂, 1 ♀). There is a third ♂ in the Australian Museum collection.

Holotype and allotype in collection Goldfinch.

Whilst closely resembling *C. wilsoni*, the venation differs in the following respects: Forewing:  $R_1$  arises from cell from well before the origin of the stalk of  $R_{2-3-4-5}$ , and is not closely approximated as in *C. wilsoni*.  $M_1$  and  $M_2$  are very closely approximated or connate, but in *C. wilsoni* they are only moderately approximated. Hindwing:  $M_1$  and  $M_2$  are connate, whereas in *C. wilsoni* they are well separated.

The presence of a large black blotch on the underside of the forewings in *C. wilsoni*, is a further point of distinction, this being absent in *C. alpina*.

## 12. Genus PARATERPNA, n. gen.

Face hairy. Tongue well developed, palpi rather short, basal and second joints densely hairy beneath, terminal joint in ♂ short, in ♀ longer. Antennae in ♂ bipectinated almost to apex, pectinations very short. Thorax with a slight anterior crest, tegulae clothed with extremely long hairs, exceeding posterior edge of thorax, beneath densely hairy. Abdomen with three or four rather strong dorsal crests, in ♂ with lateral tufts on terminal segments. Posterior tibiae with all spurs present, in ♂ somewhat dilated. Hindwings without basal costal expansion, frenulum and retinaculum in ♂ well developed, frenulum in ♀ represented by a strong tuft of hairs. Forewings with  $R_1$  from cell anastomosing with Sc and sometimes with  $R_2$ ,  $R_{2-3-4-5}$  stalked from well before angle of cell,  $M_1$  separate,  $M_2$  remote from  $M_1$ ,  $M_3$  and  $Cu_{1a}$  remote. Hindwings with termen strongly toothed on veins  $M_3-Cu_{1a}-Cu_{1b}-2A$ ; Sc +  $R_1$  approximated to cell to about middle, thence diverging rather abruptly, Rs and  $M_1$  connate or closely approximated,  $M_2$  remote,  $M_3$  and  $Cu_{1a}$  separate. Dorsal discocellulars curved inwards.

Type, *Paraterpna harrisoni*, n. sp.

Closely allied to the preceding genus, from which it differs in the smoother face, absence of the frontal crest, presence of rather strong abdominal crests, the very short antennal pectinations and the wide separation of veins  $M_1$  and  $M_2$  in both wings.

## 41. PARATERPNA HARRISONI, n. sp. Pl. xv, fig. 11.

♂, ♀. 52-60 mm. Face fuscous, lower margin narrowly, and upper margin broadly grey, vertex grey-whitish; thorax grey-whitish, clothed with long scales, a small anterior crest, beneath densely hairy; abdomen grey-whitish, with a series of black crests along the middle, forming an almost continuous black line, lateral and terminal tufts ochreous. Legs whitish-grey irrorated with fuscous scales, the posterior pair with groove and a hair pencil of pink hairs. Antennae white, with a fuscous transverse mark at the base of each segment, pectinations 1, yellow. Forewings greyish-white, sparsely irrorated with fuscous scales, but more heavily along the veins which appear fuscous; lines fuscous, first line from costa at one-fourth, sharply angulated outwards immediately below costa, thence three times extremely acutely dentate to dorsum at about one-third, discal spot small, fuscous, triangular, enclosing a few greyish scales, second line from costa at beyond three-fourths, dentate on each vein to vein  $M_3$ , which dentation projects the furthest, thence inwards to a point between veins  $Cu_{1b}$  and  $1A + 2A$  below middle of cell, thence again sharply outwards to vein  $1A + 2A$  near tornus, and then inwards curved to dorsum before tornus; a very faint terminal whitish line

from costa before apex to dorsum near tornus; a fine fuscous subterminal line; cilia greyish-white, slightly infuscated at vein endings. Hindwings white, towards the termen broadly suffused with grey scales, the veins lined with fuscous scales, first line absent, discal spot linear, fuscous; second and subterminal lines faintly indicated, terminal line and cilia as in forewing. Beneath white, first line absent, discal spot linear, second line present, not reaching dorsum, closely followed by a large fuscous blotch, not reaching costa or dorsum, hindwings similar.

N. S. Wales: Barrington Tops (5,000 ft., January, 1 ♂, 1 ♀).

Holotype and allotype in collection Goldfinch.

### 13. Genus EPIPRISTIS.

Meyrick, PROC. LINN. SOC. N.S.W., (2) 2, 1888, 916; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 631; Prout, *Gen. Insect*, fasc. 129, 1912, 29; Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 282.

Face smooth, rounded. Tongue well developed. Palpi moderate, porrect; second joint smooth above, smooth or slightly hairy beneath; terminal joint stout, moderate, somewhat longer in ♀. Antennae simple in both sexes; ciliations in ♂ minute. Thorax not crested, smooth or slightly hairy beneath. Abdomen smooth or with small crests. Posterior tibiae with all spurs present; in ♂ not dilated. Hindwings without costal expansion at base; frenulum and retinaculum in ♂ well developed; frenulum in ♀ represented by a tuft of long hairs. Forewings:  $R_1$  from cell, anastomosing with Sc and sometimes with  $R_2$ ;  $R_{2-3-4-5}$  stalked,  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  separate but closely approximated at origin. Hindwing: Sc +  $R_1$  approximated to cell at a point near base, thence rapidly diverging, Rs and  $M_1$  separate,  $M_3$  and  $Cu_{1a}$  separate but closely approximated at origin. Discocellulars nearly straight.

### 42. EPIPRISTIS MINIMARIA. Pl. xvi, fig. 14.

*Hypochroma minimaria*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 279.—*H. parvula*, Walker, *Cat. Lep. Brit. Mus.*, 21, 1860, 435.—*Acidalia truncataria*, Walker, *Cat. Lep. Brit. Mus.*, 23, 1861, 774.—*Pingasa minimaria*, Moore, *Lep. Ceylon*, 3, 1887, 420, t. 192, f. 2.—*Epipristis minimaria*, Swin., *Trans. Ent. Soc. Lond.*, 1894, 171.—*Pseudoterpna minimaria*, Hamps., *Fauna India*. Moths, 3, 1895, 479.—*Epipristis oxycyma*, Meyrick, PROC. LINN. SOC. N.S.W., (2) 2, 1888, 916.—*E. minimaria*, Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 632; Prout, *Gen. Insect.*, fasc. 129, 1912, 29.

Northern Australia: Darwin; Queensland: Cape York (June and August), Kuranda, Duaringa.

### 43. EPIPRISTIS AUSTRALIS, n. sp. Pl. xvi, fig. 13.

♂, ♀. 32-39 mm. Face velvety-black, extreme upper margin white or pale greenish; palpi white; vertex and thorax pale green, the latter without crests; abdomen greenish-white, irrorated with brownish scales, with two small whitish crests on the middle segments. Legs: anterior pair pale fuscous, median and posterior pairs whitish-ochreous, all spurs present, in ♂ somewhat dilated. Forewings whitish, in ♂ rather heavily and in the ♀ moderately irrorated with pale green scales, lines dark brownish fuscous. First line from costa at beyond one-fourth, four times angulated outwards, to dorsum at about one-fourth; second line from costa at beyond one-half, evenly curved outwards to vein  $Cu_{1a}$ , thence gently inwards to dorsum at beyond middle; posteriorly from this line each vein



is marked by a short dash; an obscure whitish waved subterminal line from costa before apex to dorsum before tornus, between this and the second line is a rather broad brownish fuscous suffusion; an interrupted terminal slender fuscous line thickened between the veins; cilia brownish, darker towards the base and obscurely barred with paler. A distinct fuscous linear transverse discal dot. Hindwings as forewings; first line absent; fuscous suffusion beyond second line less distinct, except near tornus and about middle; a transverse, slightly elongate fuscous discal dot. Beneath, whitish; first line absent, discal dots as above, second line very distinct and closely followed posteriorly by a broad fuscous suffusion not reaching the hind margin in the hindwings.

Queensland: Toowoomba (January and February, 1 ♂, 1 ♀).

Holotype and allotype in collection Barnard.

14. Genus *CRYSIPHONA*.

Meyrick, PROC. LINN. SOC. N.S.W., (2) 2, 1888, 901; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 630; Prout, *Gen. Insect.*, fasc. 129, 1912, 44; Turner, *Trans. Roy. Soc. S. Aust.*, 45, 1922, 279.

Face smooth. Tongue well developed. Palpi obliquely ascending, basal and second joints with long rough hairs beneath; basal joint longer than second joint; terminal joints short in both sexes. Antennae in ♂ pectinated, apices simple; in ♀ simple. Thorax not crested, or with a slight anterior crest; beneath densely hairy. Abdomen without dorsal crests; in ♂ with lateral tufts of hair on each segment, posterior tibiae without middle spurs in both sexes; in ♂ sometimes dilated, with groove containing hair pencil. Hindwings without basal expansion; frenulum and retinaculum well developed in ♂, frenulum in ♀ represented by a tuft of long hairs. Forewings:  $R_1$  anastomosing with Sc and  $R_2$ ,  $R_{2-3-4-5}$  stalked,  $M_1$  separate or short-stalked,  $M_3$  and  $Cu_{1a}$  separate. Hindwings: Sc +  $R_1$  closely approximated to cell near base, rapidly diverging;  $R_s$  and  $M_1$  separate or connate,  $M_2$  and  $Cu_{1a}$  separate. Discocellulars nearly straight; rather strongly oblique, costal edge of cell considerably exceeding two-thirds. Type, *C. occultaria* Don.

*Key to Species.*

- 1. Face black ..... *occultaria*
- Face not black ..... 2
- 2. Cilia brown barred with white between veins ..... *eremnopis*
- Cilia not so ..... 3
- 3. Forewings with black markings ..... *melanosema*
- Forewings without black markings ..... *amaura*

44. *CRYSIPHONA MELANOSEMA*. Pl. xvi, fig. 16.

Meyrick, PROC. LINN. SOC. N.S.W., (2) 2, 1888, 901; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 631; Prout, *Gen. Insect.*, fasc. 129, 1912, 44; Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 279.

Western Australia: Albany (September to December), Denmark (April).

45. *CRYSIPHONA AMAURA*. Pl. xvi, fig. 15.

Meyrick, PROC. LINN. SOC. N.S.W., (2) 2, 1888, 902; Turner, PROC. LINN. SOC. N.S.W., 35, 1910, 631; Prout, *Gen. Insect.*, fasc. 129, 1912, 45.

Western Australia: Albany (September, October, February and April), Busselton (February and October).

46. *CRYSIPHONA OCCULTARIA*.

*Phalaena occultaria*, Donovan, *Ins. New Holland*, 1805, t. 36, f.\*\*\*\*.—*Boarmia occultaria*, Boisduval, *Faune Ent. Pacif.*, 1, 1832, 257.—*Hypochroma occultaria*, Guenée, *Spec. Gen. Lep.*, 9, 1858, 281.—*Crypsiphona occultaria*, Meyrick, *Proc. Linn. Soc. N.S.W.*, (2) 2, 1888, 903; Turner, *Proc. Linn. Soc. N.S.W.*, 35, 1910, 631; Prout, *Gen. Insect.*, fasc. 129, 1912, 44.

Northern Australia: Darwin; Queensland: Townsville, Stannary Hills, Daringa, Yeppoon, Gayndah, Nambour, Nanango, Brisbane, Mt. Tambourine, Bunya Mts., Dalby, Toowoomba, Stanthorpe, Warwick, Charleville; N. S. Wales: Lismore, Port Macquarie, Newcastle, Sydney, Blue Mts., Mittagong, Bathurst; Victoria: Birchip, Melbourne, Beaconsfield, Gisborne; Tasmania: Hobart, Tasman Pen., Cygnet, Launceston, Wilmot; South Australia: Mt. Lofty; Western Australia: Albany, Waroona.

47. *CRYSIPHONA EREMNOPIA*. Pl. xvi, fig. 17.

Turner, *Trans. Roy. Soc. S. Aust.*, 46, 1922, 279.

Western Aust.: Cunderdin (October), Mt. Barker.

This species bears a close resemblance to species of the Genus *Paraterpna*, but in the forewing  $R_1$  anastomoses only with Sc, and in the hindwing  $R_s$  and  $M_1$  are connate and not stalked. The thorax of the type is abraded and the presence or absence of crests cannot be determined.

*Index to Genera (synonyms in italics).*

*Absala*, 8; *Aeolochroma*, 9; *Archeopseustes*, 8; *Austroterpna*, 6; *Autanepsia*, 11; *Calleremites*, 8; *Crypsiphona*, 14; *Cyneoterpna*, 11; *Epipristis*, 13; *Euarestes*, 10; *Heliomystis*, 2; *Hypobapta*, 5; *Hypochroma*, 8; *Oenochlora*, 10; *Pachyodes*, 8; *Paraterpna*, 12; *Pingasa*, 7; *Protophyta*, 1; *Pseudoterpna*, 8; *Psilostagma*, 8; *Rhuma*, 3; *Skorpisthes*, 7; *Sterictopsis*, 4; *Terpna*, 8.

*Index to species (synonyms in italics).*

*acanthina*, 30; *acutangula*, 16; *alpina*, 40; *amaura*, 45; *argyraspis*, 4; *assidens*, 18; *atriscrupta*, 15; *aurantiacea*, 18; *australis*, 43; *barnardi*, 8; *blanda*, 16; *bryophanes*, 28; *bryophylla*, 21; *calliglauca*, 24; *castanea*, 1; *cetraria*, 20; *chlora*, 14; *cinerea*, 17; *communicans*, 13; *commutata*, 13; *conspurcata*, 25; *decristata*, 13; *deteriorata*, 23; *diffundens*, 10; *divergens*, 5; *electrica*, 2; *emiliaria*, 18; *erebata*, 26; *erebusata*, 26; *eremnopis*, 47; *eugramma*, 7; *grandidieri*, 13; *harrisoni*, 41; *horridata*, 23; *hypochromaria*, 28; *idiographa*, 11; *imperialis*, 38; *inconsequens*, 4; *melaleucaea*, 36; *melanosema*, 44; *metarhodata*, 34; *minimaria*, 42; *mnitaria*, 32; *multicolor*, 19; *munila*, 15; *myriosticta*, 25; *muscosaria*, 20; *nigraria*, 23; *nobilitans*, 38; *nyctemerata*, 13; *occultaria*, 46; *ochrea*, 35; *oaycyma*, 42; *paratorna*, 12; *paratorna*, 4; *paroptila*, 22; *parvula*, 42; *patrocinnatus*, 38; *percomptaria*, 6; *perfectaria*, 13; *perfulvata*, 31; *purpurifera*, 18; *purpurissata*, 18; *quadrilinea*, 35; *rhodochlora*, 33; *ruginaria*, 13; *saturataria*, 31; *singularis*, 17; *squamata*, 20; *subaurata*, 3; *subornata*, 18; *subrubesens*, 29; *truncataria*, 42; *turneri*, 37; *undascripta*, 17; *unitaria*, 30; *viridicata*, 27; *wilsoni*, 39; *xenomorpha*, 9.

The following notes on Australian species are outside the scope of the present paper as set out in the introduction, but the opportunity is taken of recording species new to the Australian Fauna, and notes on other species of the family.

Genus *XENOCHLAENA*.

Lower, *Trans. Roy. Soc. S. Aust.*, 27, 1903, 192.

Face smooth, frons projecting somewhat. Palpi 2, second joint two-thirds, terminal joint one-third. Antennae bipectinate to about four-fifths, apex simple.

Thorax and abdomen smooth. Thorax hairy beneath. Posterior tibiae with median spurs absent. Fovea absent. Hindwings without rounded basal costal expansion at base. Frenulum and retinaculum well developed in ♂, in ♀ unknown. Forewing:  $R_1$  from cell and free, approximated to Sc,  $R_{2-3-4-5}$  stalked from angle of cell,  $M_1$  short stalked,  $M_2$  from above middle of discocellulars,  $M_3$  and  $Cu_{1a}$  separate. Dorsal edge of cell much longer than costal edge, discocellulars strongly curved inwards. Hindwing: Sc +  $R_1$  approximated to cell near base only, gradually diverging, Rs and  $M_1$  long stalked from angle,  $M_2$  from above middle,  $M_3$  and  $Cu_{1a}$  separate, discocellulars hardly curved.

It seemed desirable to diagnose the genus afresh.

#### XENOCHLAENA PORPHYROPA.

*Arrhodia porphyropa*, Lower, Proc. Linn. Soc. N.S.W., 23, 1898, 42.—

*Xenochlaena porphyropa*, Lower, Trans. Roy. Soc. S. Aust., 27, 1903, 192.

One ♂, through the generosity of the South Australian Museum, where there are other specimens.

#### Genus ALLOEOPAGE.

Prout, *Novit. Zool.*, 20, 1913, 404.

The genus seems sufficiently distinct from *Helicopage* Warren, in that veins  $R_1$  and  $R_3$  of the forewing are long stalked from the cell, whereas in the latter genus they are separate. In *Alloecopage* the retinaculum appears to be normal.

Type of genus, *A. cinerea* Warren.

#### ALLOEOPAGE CINEREA. Pl. xvi, figs. 2, 3.

*Agathia cinerea*, Warren, *Novit. Zool.*, 3, 1896, 284.—*Helicopage velata*, Warren, *Nov. Zool.*, 6, 1899, 330 (nov. syn.).—*H. cinerea*, Prout, *Gen. Insect.*, fasc. 129, 1912, 63.—*Alloecopage cinerea*, Prout, *Nov. Zool.*, 20, 1913, 404.

Q'land: Cape York (May and June, Barnard), Kuranda (January, Dodd).

#### Genus HEMICHLOREIS.

Turner, *Proc. Roy. Soc. Q'land*, 29, 1917, 71.

Face smooth, tongue well developed. Palpi moderate, porrect, basal and second joints shortly rough-haired beneath, terminal joint in ♂ short, obtuse, in ♀ longer. Antennae in ♂ bipectinate, apices simple, in ♀ minutely ciliated. Thorax not crested, beneath not hairy. Abdomen not crested. Femora not hairy. Posterior tibiae with all spurs present, in ♂ not dilated. Hindwings without rounded basal costal expansion, frenulum and retinaculum in ♂ well developed. Forewings: cell short, about two-fifths,  $R_1$  from cell before angle, running into Sc,  $R_{2-3-4-5}$  and  $M_1$  stalked from angle,  $M_2$  remote,  $M_3$  and  $Cu_{1a}$  stalked. Hindwing: cell short, about two-fifths, Sc +  $R_1$  approximated to cell near base, then rather rapidly diverging, Rs and  $M_1$  stalked from angle,  $M_2$  remote,  $M_3$  and  $Cu_{1a}$  stalked.

The capture of a second ♂ has enabled a more thorough examination of the venation to be made, resulting in some alteration in the generic diagnosis being necessary. Unfortunately in the type ♂ (*theata*) the median spurs of the hind tibiae are broken off one tibia; in the second male they are clearly present.

Type of genus, *H. exoterica* Meyrick (= *theata* Turn.).

#### HEMICHLOREIS EXOTERICA. Pl. xvi, fig. 12.

*Iodis exoterica*, Meyrick, Proc. Linn. Soc. N.S.W., (2) 2, 1888, 891.—*Hemichloreis theata*, Turner, *Proc. Roy. Soc. Q'land*, 29, 1917, 71.

Turner's species is the male of *H. exoterica*, Meyrick, the ♀ differing considerably in markings.

N. S. Wales: Taree (December), Newcastle, National Park, near Sydney (February).

AGATHIOPSIS MACULATA. Pl. xvi, fig. 1.

Warren, *Novit. Zool.*, 3, 1896, 286.—*Agathia benedicta*, Pagens, *Zoologica*, 29, 1900, 152, t. 2, f. 39.—*Agathiopsis maculata*, Prout, *Gen. Insect.*, fasc. 129, 1912, 92. Q'land: Cape York (1 ♂, June, Barnard).

Not hitherto recorded from Australia.

ULIOCNEMIS ELEGANS.

Warren, *Nov. Zool.*, 6, 1899, 28.—*U. cassidara* Pagens., *Zoologica*, 29, 1900, 153 (*nec* Guenée).—*U. elegans*, Prout, *Gen. Insect.*, fasc. 129, 1912, 92.

Q'land: Cape York (April, June, November; A series, Barnard).

Hitherto doubtfully recorded from Australia.

EUCYCLODES FASCINANS LUCAS.

Warren (*Novit. Zool.*, 19, 1912, 69) points out that his *dentata* is the ♀ of Lucas's species. I have also arrived at the same conclusion, having taken both sexes flying together in the Cairns district, but not actually *in cop.*

EXPLANATION OF PLATES XIV-XVI.

Plate xiv.

- 1.—*Terpna mniaria* Goldfinch. ♂.
- 2.—*Terpna mniaria* Goldfinch. ♂. Underside.
- 3.—*Terpna saturataria* Walker. ♂.
- 4.—*Terpna saturataria* Walker. ♂. Underside.
- 5.—*Terpna hypochromaria* Guenée. ♂.
- 6.—*Terpna hypochromaria* Guenée. ♂. Underside.
- 7, 8.—*Protophyta castanea* Lower. ♂.
- 9, 10.—*Protophyta castanea* Lower. ♀.
- 11.—*Heliomystis electrica* Meyrick. ♂.
- 12.—*Terpna viridicata* Lucas. ♀.
- 13.—*Pingasa bryophylla* Goldfinch. ♂.
- 14.—*Pingasa muscosaria* Guenée. ♂.
- 15.—*Pingasa calliglauca* Turner. ♂.
- 16.—*Pingasa deteriorata* Walker. ♂.
- 17.—*Pingasa conspurcata* Lucas. ♀.
- 18.—*Pingasa unitaria* Walker. ♂.

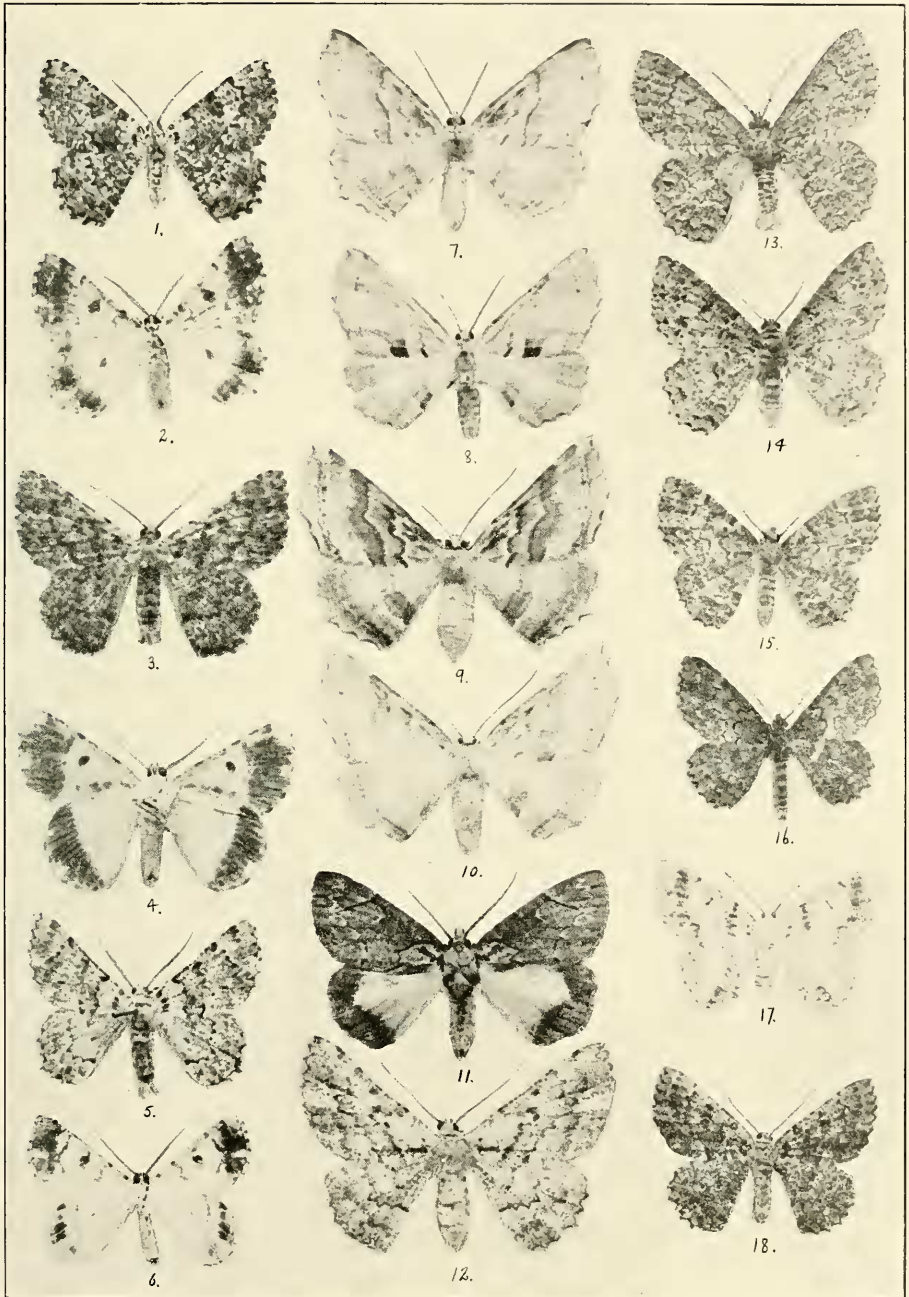
Plate xv.

- 1.—*Pingasa atriscripta* Warren. ♂.
- 2.—*Pingasa blanda* Pagenstecker. ♀.
- 3.—*Pingasa cinerea* Warren. ♂.
- 4.—*Sterictopsis divergens* Goldfinch. ♂.
- 5.—*Sterictopsis argyraspis* Lower. ♂. Melanic form.
- 6.—*Sterictopsis argyraspis* Lower. ♀. Normal form.
- 7.—*Terpna metarhodata* Walker. ♂.
- 8.—*Pingasa ruginaria* Guenée. ♂.
- 9.—*Pingasa chlora* Cramer. ♂.
- 10.—*Cyneoterpna wilsoni* Felder. ♂.
- 11.—*Paraterpna harrisoni* Goldfinch. ♂.
- 12.—*Cyneoterpna alpina* Goldfinch. ♂.
- 13.—*Terpna quadrilinea* Lucas. ♂.

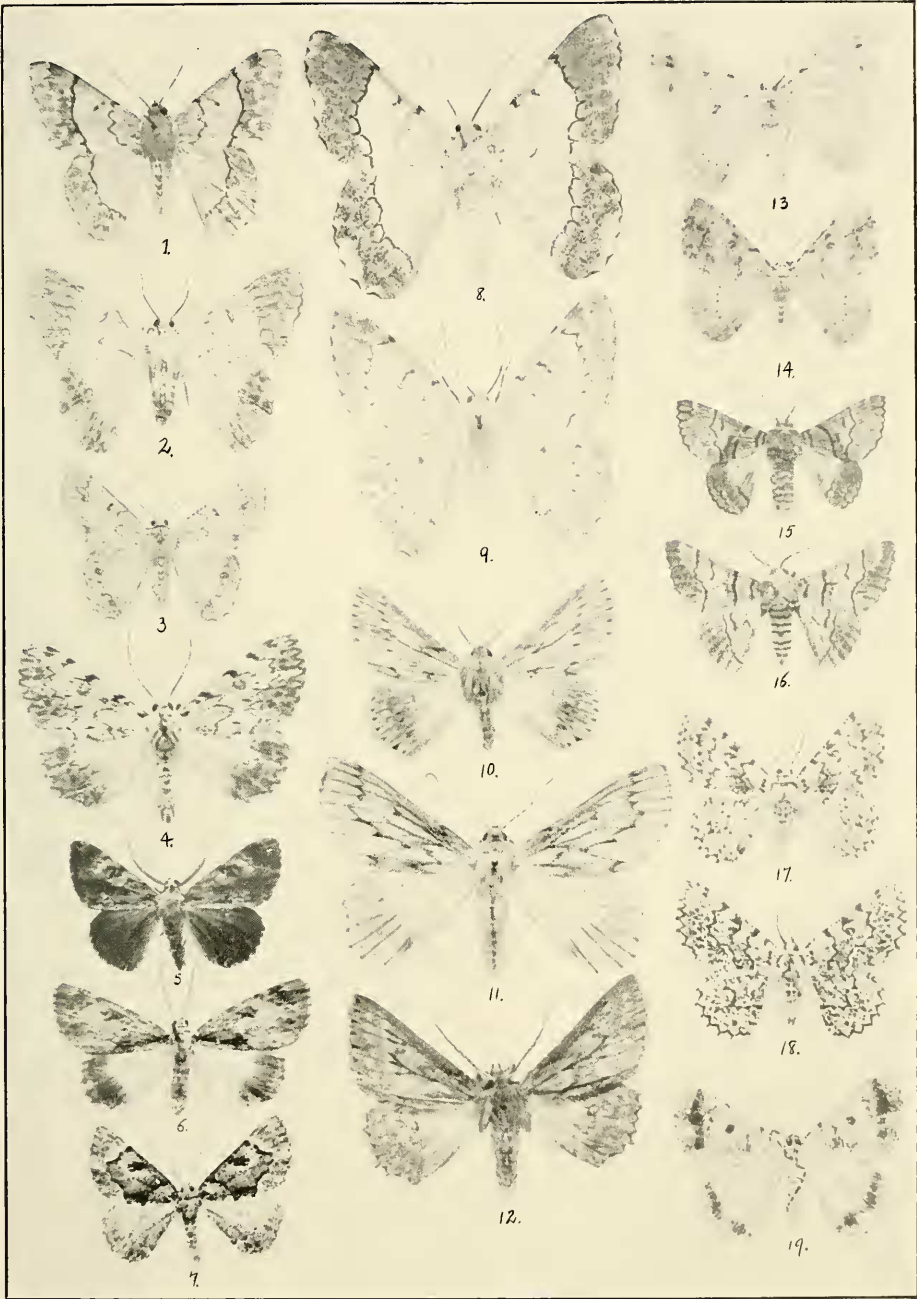
- 14.—*Terpna melaleuca* Goldfinch. ♂.
- 15.—*Hypobapta barnardi* Goldfinch. ♂.
- 16.—*Hypobapta eugramma* Lower. ♂.
- 17.—*Terpna subrubescens* Warren. ♂.
- 18.—*Terpna subrubescens* Warren. ♀.
- 19.—*Terpna unitaria* Walker. ♂. Underside.

## Plate xvi.

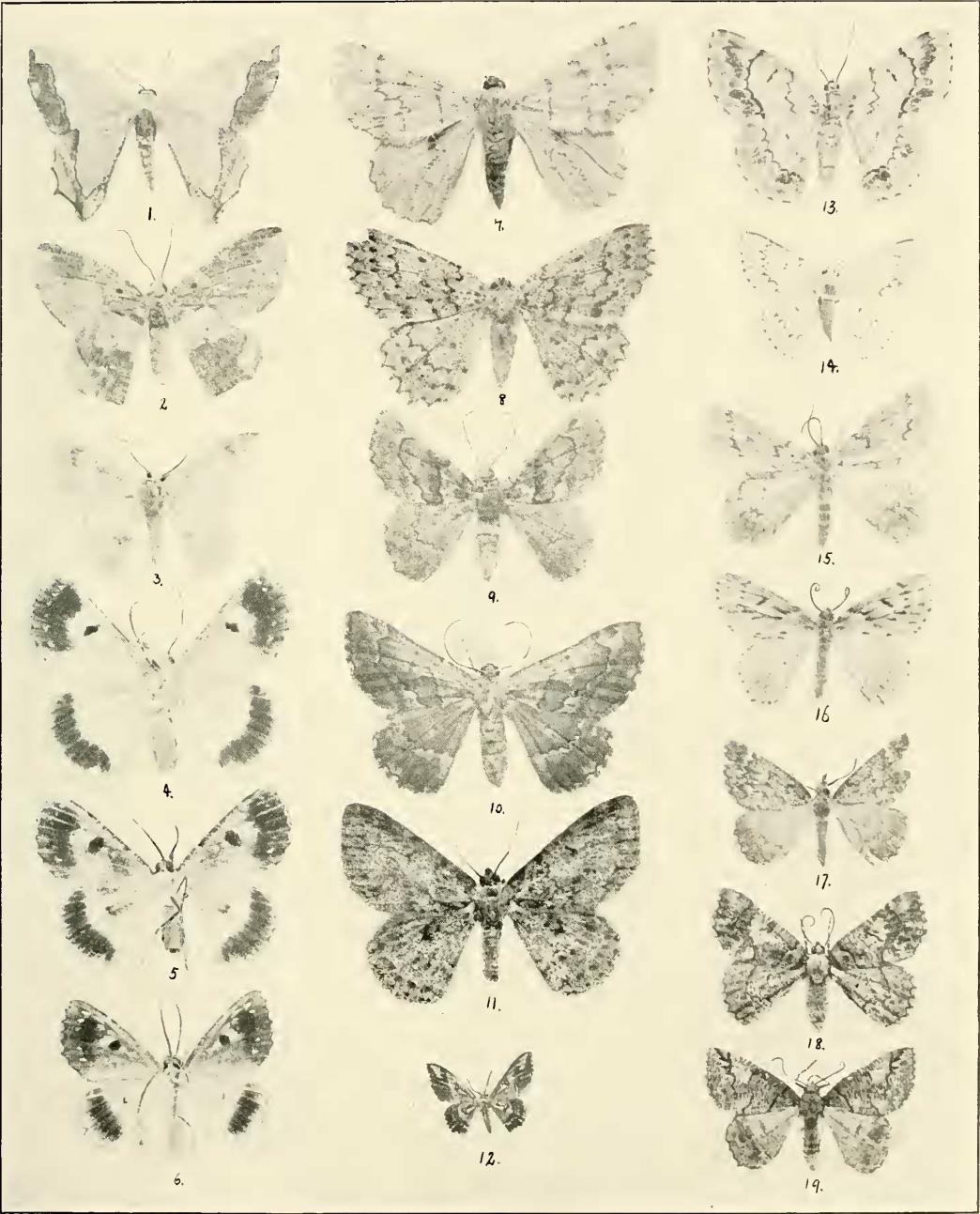
- 1.—*Agathiopsis maculata* Warren. ♂.
  - 2.—*Alloeopage cinerea* Warren. ♀.
  - 3.—*Alloeopage cinerea* Warren. ♂.
  - 4.—*Pingasa bryophylla* Goldfinch. ♂. Underside.
  - 5.—*Pingasa muscosaria* Guenée. ♂. Underside.
  - 6.—*Pingasa deteriorata* Walker. ♂. Underside.
  - 7.—*Pingasa paroptila* Turner. ♂.
  - 8.—*Terpna unitaria* Walker. ♂.
  - 9.—*Aeolochroma turneri* Lucas. ♂.
  - 10.—*Aeolochroma turneri* Lucas. ♀.
  - 11.—*Pingasa erebata* Walker. ♂.
  - 12.—*Hemichloreis exoterica* Meyrick. ♂.
  - 13.—*Epipristis australis* Goldfinch. ♀.
  - 14.—*Epipristis minimaria* Guenée. ♂.
  - 15.—*Crypsiphona amaura* Meyrick. ♂.
  - 16.—*Crypsiphona melanosema* Meyrick. ♂.
  - 17.—*Crypsiphona eremnopsis* Turner. ♂.
  - 18.—*Terpna rhodochlora* Goldfinch. ♀.
  - 19.—*Austroterpna idiographa* Goldfinch. ♂.
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Australian Geometridae.



Australian Geometridae.



Australian Geometridae.